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Missouri WIC: 25 Years of Building Healthier Families Through Good Nutrition

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1999 marks the 25th anniversary of Missouri's Special Supplemental Nutrition Program for Women, Infants and Children (WIC). The national program began in 1974 when Congress passed legislation funding WIC through the United States Department of Agriculture (USDA). USDA distributes funds to the states, territories and Native American Nations. They, in turn, distribute the funds to local agencies that deal directly with the participants.

In 1974, 19 clinic sites began operating around the nation. Missouri operated two of these, one in Kirksville and the other in Rolla. Records from that year show that, combined, the two clinics served 934 participants. Now these same two agencies together see almost 2,000 participants a month.

By 1984, WIC services were being offered in every county in Missouri. Today, 120 local agencies operate about 250 clinic sites. Missouri WIC contracts with a variety of organizations for these services, including local public health agencies and private health care providers. Both are able to integrate WIC's services to complement their missions.

Missouri WIC serves pregnant and postpartum women, infants and children under the age of 5, whose income is within 185 percent of the national poverty level and for whom a nutritional risk has been documented

Missouri WIC Income Guidelines
April 1, 1999–March 31, 2000

Family Size	Annual Income
1	$15,244
2	$20,461
3	$25,678
4	$30,895
5	$36,112
6	$41,329
7	$46,546
8	$51,763
Each Additional Family Member	+$5,217

(Pregnant women are counted as two family members)

Many young working families are unaware they qualify for WIC.

Even if a participant meets the qualifications for this program, it is possible that funds will be inadequate to serve everyone who needs the service. Each year WIC receives its appropriation from Congress. That funding then determines at what level WIC will be able to operate during the year. When participants come to the clinic, their nutritional risk is rated on a scale from low risk to high risk. If the program has inadequate funds to serve all risk levels, participants are prioritized starting with the highest first.

Since its beginning, WIC has always been more than a "hand out." The program offers its participants nutrition education and counseling, referrals for health care and other services, breastfeeding support and nutritious supplemental foods. By providing this complete package, the intent of the program becomes obvious: to provide the participant and family with long-term benefits while offering temporary limited assistance.

Nutrition Education and Counseling

Before any participant is qualified for the program, a nutrition assessment is done and the nutritional risks are rated. After that evaluation, the participant spends time with a counselor who helps determine individual ways to improve

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nutritional health. In addition to these counseling sessions, each participant is strongly encouraged to attend nutrition education classes conducted conveniently at the time food vouchers are distributed.

Nutrition education and counseling can effectively improve the long-term nutritional health of participants, as well as their family and friends. Good nutrition can positively affect many chronic health conditions and decrease the incidence of chronic disease.

Referrals to Health Care and Other Services

This service offers WIC participants access to holistic programs and services designed to improve quality of life. WIC staff encourage prenatal care for pregnant women, a practice long known to decrease costs and improve health outcomes. Parents are educated about how to get their children immunized. Medicaid and Child Health Insurance Program (CHIP) applications are encouraged when appropriate. WIC affects the overall well-being of its participants in both the short and long terms.

Breastfeeding Support

Another key element of WIC is breastfeeding support. WIC ensures that infants and children receive the appropriate nutrients to get a good start to life, and nothing provides better nutrition to infants than breastfeeding. Babies who are breastfed have a stronger immune system and tend to do better in school than children who are not breastfed.

Nutritious Supplemental Food

This is the aspect of the program that most of the population already associates with WIC. The program is committed to providing foods high in protein, iron, calcium, folate and vitamins A and C. By providing foods high in these dietary components, WIC helps to assure that its participants are getting essential nutrients most often lacking and, therefore, influencing long-term health. These foods are only supplemental and do not represent a complete healthy diet. Therefore, education, counseling, referrals and support are also essential to a participant's long-term healthy outcome. However, if the program ignored the missing foods and nutrients in participants' diets, it would not be as effective in the short term, potentially resulting in increases in medical costs as well as long term complications from lack of these essential dietary components.

In recent years, WIC has added the Farmers' Market Nutrition Program to provide fresh fruits and vegetables to its participants. In this program, WIC participants bring coupons they receive at their local clinic to the Farmers' Market and exchange them for the fresh fruits and vegetables sold there. This program's funding is partially provided by USDA and matched by a state or local funding source. Since this is a new program, it is not yet offered in every county in Missouri. At the present time, this program is available at 15 Farmers' Markets in nine counties.

Studies show that WIC participants have longer pregnancies leading to fewer premature births; give birth to fewer low- and very low-birth-weight babies; experience fewer fetal and infant deaths; seek prenatal care earlier in pregnancy and consume more key nutrients. WIC enables parents to properly feed their children during the critical early years of growth and development, assuring normal growth and reducing levels of anemia. WIC participation also increases immunization rates and improves access to regular health care. In 1998, nearly half of the infants born in the United States, one in five children under the age of 5, and one in every five pregnant women received WIC benefits.

If you are aware of pregnant and postpartum women, or children under the age of 5, who could benefit from participating in WIC, please contact the Bureau of Nutrition Services and WIC at (800) TEL-LINK to find out the location of the nearest clinic. If you would like literature about the WIC program to distribute at your facility, please call (800) 392-8209, or check the Department of Health home page at **www.health.state.mo.us/NutritionServices/WICAndNS**.

Communicable Disease Control 1998 Annual Report

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For persons not familiar with the public health system, it may be helpful to summarize the general categories of communicable diseases in order to put this summary report in context. Some communicable diseases reportable in Missouri are served by state programs which receive federal funding. These diseases include tuberculosis and most vaccine-preventable diseases[1,2], as well as sexually transmitted diseases, including HIV/AIDS (see pages 6–13 and 28–35 of this issue for annual reports on these diseases). There are currently 38 communicable diseases reportable in Missouri for which state programs do not receive federal funding. Some zoonotic diseases within this category have been discussed elsewhere.[3,4,5] The influenza summary for the 1998–99 season can be found on pages 14–15 of this issue. This communicable disease control annual report for 1998 covers trends for the other 24 reportable communicable diseases. Of these diseases, 10 were of low incidence and will not be discussed further (botulism, cholera, invasive group A streptococcus, hemolytic uremic syndrome, typhoid, Kawasaki syndrome, Legionella, malaria, Reye's syndrome and toxic shock syndrome). The remaining 14 diseases will be discussed in three general categories: enteric diseases (2,293 case reports), hepatitis (890 case reports) and meningitis (80 case reports).

Reporting Sources

The reporting sources for communicable disease data include:

- Hospital infection control practitioners - 976 (29.9%)
- Other laboratories - 954 (29.2%)
- Physicians - 323 (9.9%)
- Hospital laboratories - 278 (8.5%)
- Public health clinics - 71 (2.2%)

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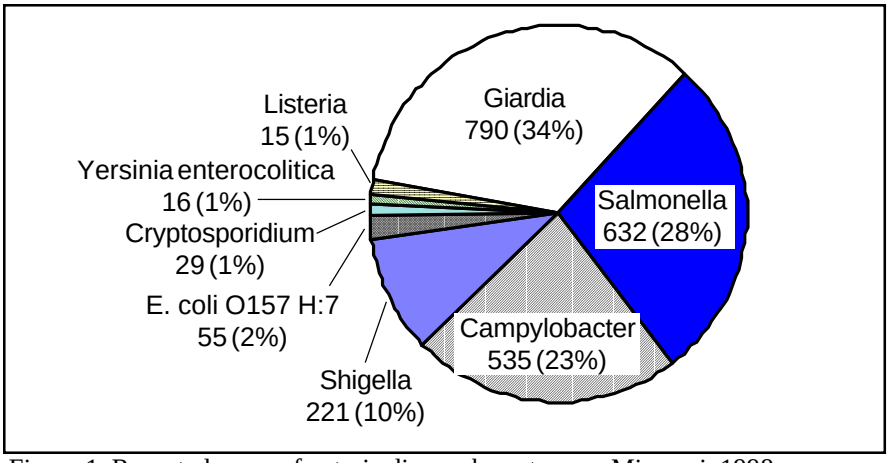

Figure 1. Reported cases of enteric disease by category, Missouri, 1998.

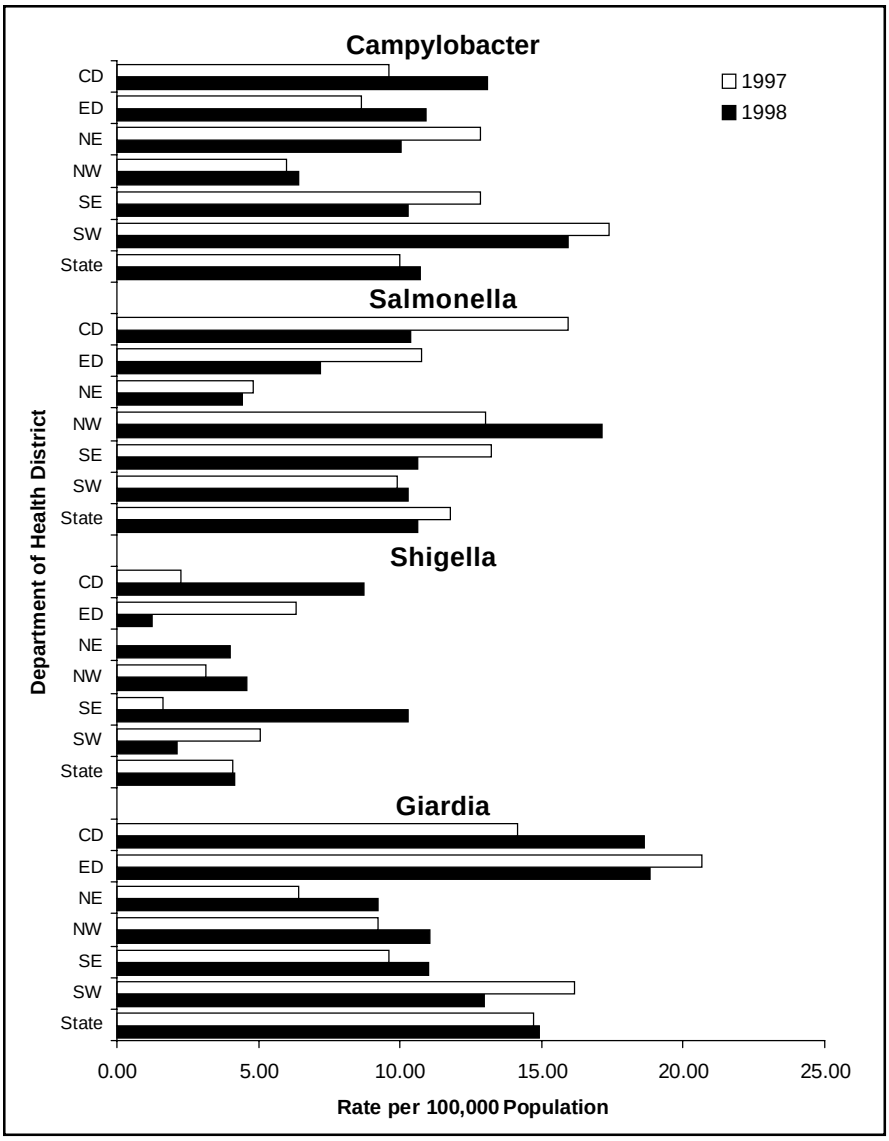

Figure 2. Reported cases of enteric disease by Department of Health district, Missouri, 1997 and 1998.

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- Outpatient clinics - 15 (0.5%)
- School nurses - 4 (0.1%)
- Other sources - 642 (19.7%)

Enteric Diseases

Among the diseases falling into the enteric category, four accounted for 95 percent of the enteric diseases reported in 1998: *Giardia* 790 (34%), *Salmonella* 632 (28%), *Campylobacter* 535 (23%), and *Shigella* 221 (10%). See Figure 1 on page 3. Overall, the incidence of these four diseases increased by 0.6 percent over 1997 (2,164 versus 2,178 cases). The increase in *Giardia*, *Campylobacter* and *Shigella* was almost balanced by a 11.3 percent decrease in the number of *Salmonella* cases reported. See Figure 2 on page 3.

Every health district reported an increase in at least one major enteric pathogen, except the Northwestern district, where the rates of all four diseases were decreased from last year. Rates of enteric diseases tended to peak in two age groups: age <7 years and the range 21–45 years. This pattern is likely to reflect transmission within families that have a member in the toddler years. See Figure 3.

The reports of enteric disease followed a seasonal pattern, with higher rates during the summer months (*Giardia*, *Campylobacter* and *Salmonella*) and the Thanksgiving to New Year season (*Shigella* and *Salmonella*). See Figure 4. Statewide, the rates of all four diseases were consistent with trends of previous years:

- *Giardia* increased 2.1 percent (790 cases in 1998, up from the 5-year median of 774 cases) ,
- Salmonella increased 11.3 percent (632 cases in 1998, up from the 5-year median of 568 cases),
- *Campylobacter* decreased 11.0 percent (535 cases in 1998, down from the 5-year median of 601 cases), and
- *Shigella* decreased 66.2 percent (221 cases in 1998, down from the 5-year median of 221 cases that reflects a large increase of 1,138 cases in 1995).

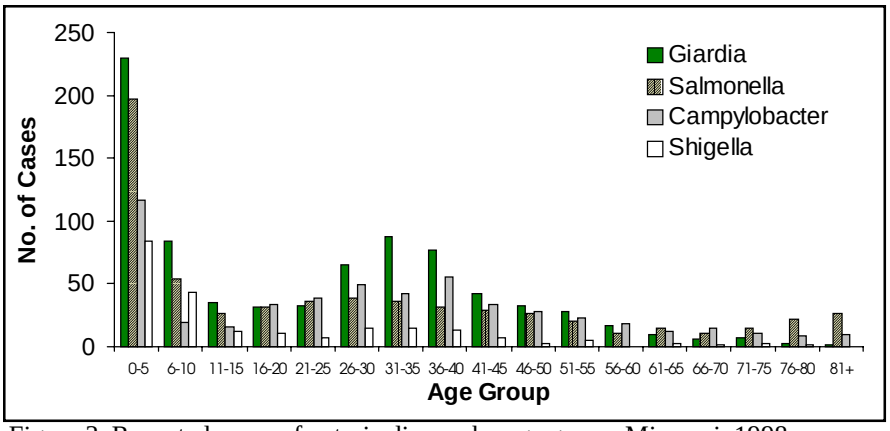


Figure 3. Reported cases of enteric disease by age group, Missouri, 1998.

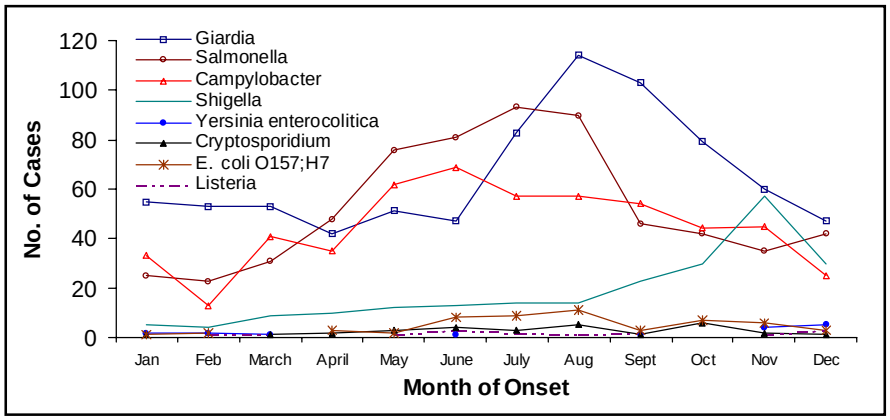


Figure 4. Reported cases of enteric disease by month of onset, Missouri, 1998

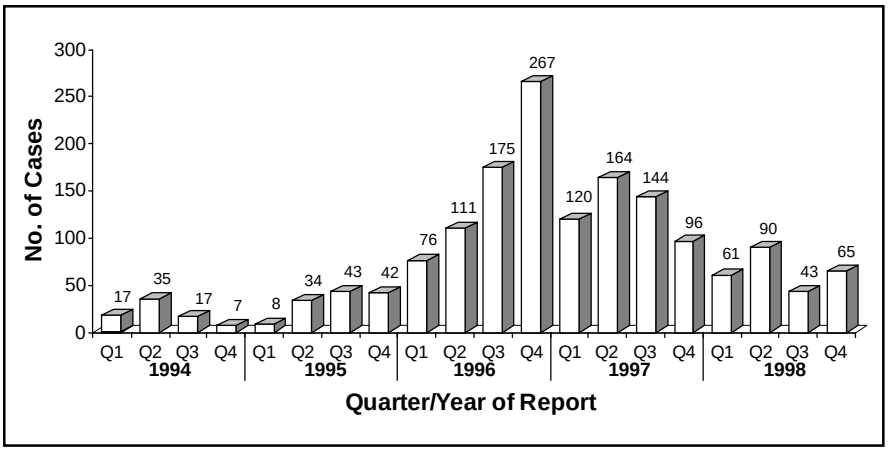
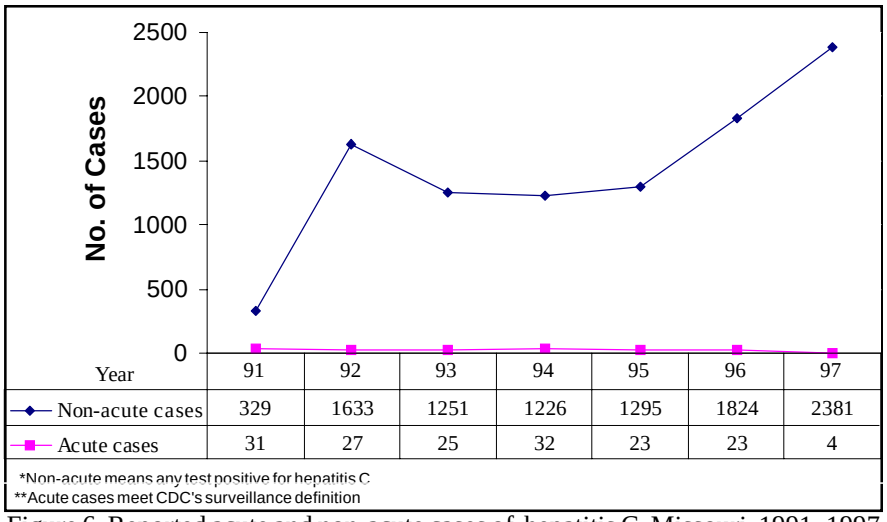


Figure 5. Reported cases of hepatitis A by quarter/year of report, Southwestern Health District, Missouri, 1994–1998.

Hepatitis

Hepatitis A cases in 1998 (637) decreased 44.7 percent statewide from 1997 (1,151 cases) and 52.4 percent from the 5-year median (1,338 cases). Recently, the highest rates of hepatitis A have been reported in the southwestern portion of the state. See Figure 5. For counties which have a rate of hepatitis A greater than 50 per 100,000 population, the federal government provides pediatric vaccine through the Vaccines For Children (VFC) program. Nine counties, all in the Southwestern health district, qualified to receive this vaccine and all have initiated intensive vaccination efforts.

In 1998, vaccination campaigns in the pediatric age group were expanded to include 16 other counties that volunteered to distribute a total of 90,000 doses of the three-dose vaccine (donated to the state by the SmithKline Beecham pharmaceutical company). Vaccine campaigns targeted to adults were administered in 11 counties throughout the state, through special state funding targeted for hepatitis A. Some counties offered hepatitis A vaccine at cost to food handlers. In 1998, every health district reported a decrease in the number of hepatitis A cases from 1997.



Year	91	92	93	94	95	96	97
Non-acute cases	329	1633	1251	1226	1295	1824	2381
Acute cases	31	27	25	32	23	23	4

*Non-acute means any test positive for hepatitis C
**Acute cases meet CDC's surveillance definition

Figure 6. Reported acute and non-acute cases of hepatitis C, Missouri, 1991–1997.

The number of hepatitis B cases also decreased statewide, from 360 cases in 1997 to 252 cases in 1998 (30%), reflecting a 42.3 percent decrease from the 5-year median of 437 cases. In 1998, the state provided additional vaccine to local public health agencies so that patients through age 18 years meeting requirements for the VFC Program could obtain hepatitis B immunizations through their local public health agencies.

Reports of hepatitis C increased from 6 cases in 1997 to 14 cases in 1998. These cases are acute cases of hepatitis C that meet the case definition from the Centers for Disease Control and Prevention (CDC).[6] The Department of Health also tracks all reports of persons who have tested positive at any time for hepatitis C. These cases are more likely to be chronic, or non-acute cases. See Figure 6. If the estimated national prevalence rate of infection for hepatitis C of 1.8 percent[7] were true in Missouri, we would expect approximately 94,000 cases of hepatitis C to have been reported. However, case reports tallied through October 1998 number just over 12,000 case reports. It is very likely that a large number of cases have either not been reported or have not been diagnosed. Persons in high risk groups for hepatitis C[7] should be screened so they can take secondary prevention measures such as seeking vaccination for hepatitis A and B, abstaining from alcohol (and other drugs metabolized by the liver such as Tylenol), and discussing treatment options with their physician. See sidebar for high risk groups.

High Risk Groups for Hepatitis C[7]

The following individuals are considered at high risk for hepatitis C and should be tested:

- Persons who were treated for clotting problems with a blood product made before 1987, when more advanced methods for manufacturing the products were developed.
- Persons who were notified that they received blood from a donor who later tested positive for hepatitis C.
- Persons who received a blood transfusion or solid organ transplant before July 1992, when better testing of blood donors became available.
- Long-term hemodialysis patients.
- Persons who ever injected illegal drugs, including those who injected once or a few times many years ago.
- Persons who have signs or symptoms of liver disease (e.g., abnormal liver enzyme tests).
- Health-care workers after exposures (e.g., needle sticks or splashes to the eye) to HCV-positive blood on the job.
- Children born to HCV-positive women.

Meningitis

Reports of meningitis and other forms of meningococcal disease were down from both 1997 and the 5-year median. Statewide, 25 meningitis cases were reported, down 41.9 percent from 43 cases, which was both the number of cases in 1997 and the 5-year median. Other invasive meningococcal disease also decreased, down from 63 cases reported in 1997 to 55 cases in 1998.

There was a large increase in aseptic meningitis, up 220 percent from 1997 (99 cases to 317 cases). The largest number of cases was reported from the Eastern

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Sexually Transmitted Diseases in Missouri: 1998

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Office of Epidemiology

Gonorrhea

During 1998, 9,463 cases of gonorrhea were reported in Missouri; the corresponding rate* was 175.2 cases per 100,000 population. Because of underdiagnosis and underreporting, the actual number of persons infected with *Neisseria gonorrhoeae* (and with the other sexually transmitted pathogens discussed below) is undoubtedly much higher than what is reported here.

The preceding year, 1997, 7,656 cases of gonorrhea were reported in the state, with 324,901 cases reported nationwide (most recent U.S. data). The rate of reported gonorrhea cases in Missouri (141.7) was approximately 1.2 times the U.S. rate (122.5). Missouri ranked 13th among the fifty states in rates of reported gonorrhea cases in 1997.

Of total gonorrhea cases reported in Missouri in 1998, 48.0 percent were in males and 52.0 percent were in females. Among African Americans, a higher proportion of cases were reported in males (56.2%) than in females (43.8%). Among whites, a much higher proportion of cases were reported in females (77.5%) than in males (22.5%).

* All rates (except those for congenital syphilis cases) are per 100,000 population, using 1997 population estimates.

Table 1. Reported Gonorrhea Cases and Rates by Geographic Area, Missouri, 1998

	Cases	%	Rate*
Missouri			
Whites	1,017	10.7%	21.6
Blacks	6,558	69.3%	1,081.1
Other/Unknown	1,888	20.0%	--
Total Cases	**9,463**	**100.0%**	**175.2**
St. Louis City			
Whites	98	2.7%	61.2
Blacks	2,851	78.1%	1,611.7
Other/Unknown	703	19.2%	--
Total Cases	**3,652**	**100.0%**	**1,068.2**
St. Louis County			
Whites	95	5.4%	11.6
Blacks	1,271	72.1%	773.0
Other/Unknown	398	22.6%	--
Total Cases	**1,764**	**100.0%**	**175.8**
Kansas City			
Whites	220	9.3%	73.6
Blacks	1,795	75.6%	1,354.8
Other/Unknown	360	15.2%	--
Total Cases	**2,375**	**100.0%**	**530.4**
Outstate			
Whites	604	36.1%	17.6
Blacks	641	38.3%	482.7
Other/Unknown	427	25.5%	--
Total Cases	**1,672**	**100.0%**	**46.3**

*Per 100,000 population, based on 1997 population estimates.

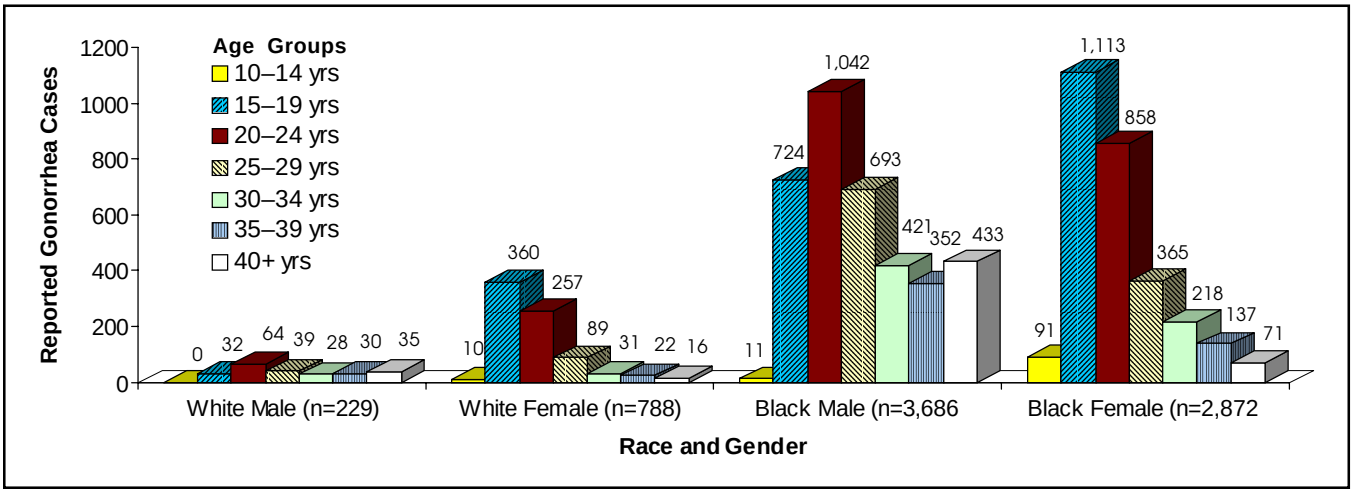

Figure 1. Reported gonorrhea cases by race, gender and age group, Missouri, 1998.

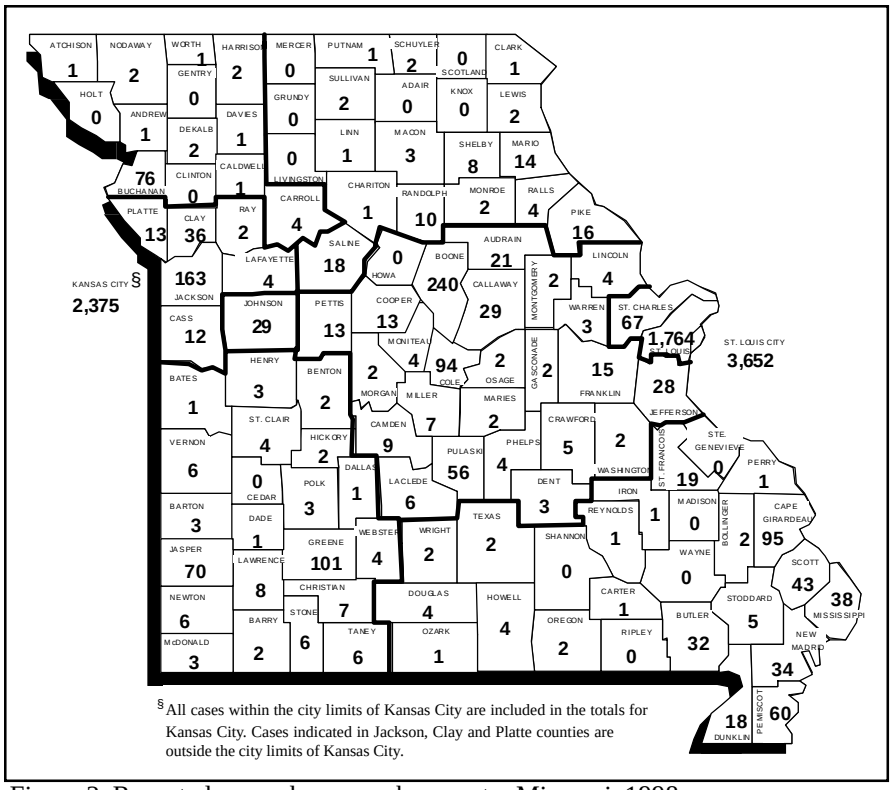

Figure 2. Reported gonorrhea cases by county, Missouri, 1998.

Of the 9,463 cases of gonorrhea reported in 1998, 6,558 (69.3%) were known to have occurred in African Americans, 1,017 (10.7%) in whites, 14 (0.1%) in Asians, and 6 (0.1%) in Native Americans. In addition, 43 (0.5%) cases were classified as Other Race. For 1,825 (19.3%) cases, race was not indicated. Table 1 shows the numbers and percentages of reported gonorrhea cases in whites and African Americans for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

Among reported gonorrhea cases, African Americans continue to be very disproportionately represented. In 1998, over six times as many cases were reported in African Americans compared to whites. The rate of reported cases in African Americans (1,081.1) was about fifty times the rate in whites (21.6). Table 1 shows the rates of reported gonorrhea cases in whites and African Americans for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

A substantial proportion of reported gonorrhea cases in females are in teenagers. In 1998, persons less than 20 years of age made up 42.2 percent of African American female cases, 47.0 percent of white female cases, 20.0 percent of African American male cases, and 14.0 percent of white male cases. Figure 1 shows the distribution of cases by age group for white males and females, and African American males and females.

In 1998, of the 9,463 gonorrhea cases reported, 3,652 (38.6%) were from St. Louis City, 2,375 (25.1%) from Kansas City, 1,764 (18.6%) from St. Louis County, and 1,672 (17.7%) from the remainder of the state (Outstate Missouri). Cases were reported from 100 of the state's 114 counties. Figure 2 shows the number of gonorrhea cases reported from each county in 1998.

The highest rate of reported gonorrhea cases in 1998 was in St. Louis City (1,068.2), followed by Kansas City (530.4), St. Louis County (175.8), and Outstate Missouri (46.3).

The annual number of reported cases of gonorrhea in Missouri had decreased each year from 1989 to 1997. In 1998, the 9,463 gonorrhea cases reported represented a 23.6 percent increase from the 7,656 cases reported in 1997. Figure 3 shows the trends in reported gonorrhea cases from 1984–1998 for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

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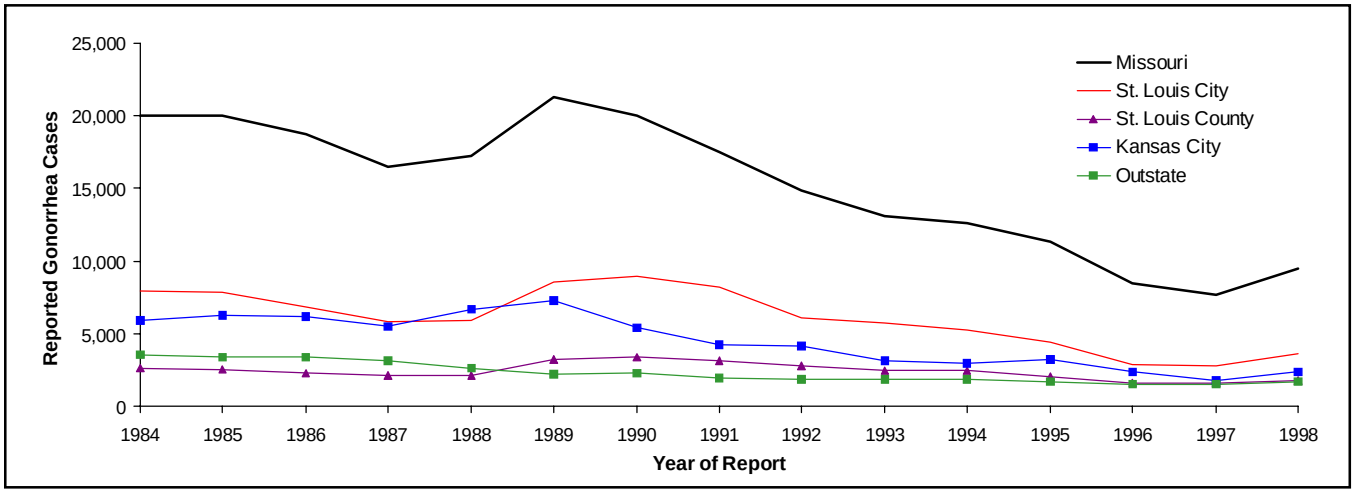

Figure 3. Reported gonorrhea cases by geographic area and year of report, Missouri, 1998.

Table 2. Reported P&S Syphilis Cases and Rates by Geographic Area, Missouri, 1998

	Cases	%	Rate*
Missouri			
Whites	11	10.1%	0.2
Blacks	90	82.6%	14.8
Other/Unknown	8	7.3%	--
Total Cases	**109**	**100.0%**	**2.0**
St. Louis City			
Whites	2	3.4%	1.2
Blacks	50	86.2%	28.3
Other/Unknown	6	10.3%	--
Total Cases	**58**	**100.0%**	**17.0**
St. Louis County			
Whites	0	0.0%	0.0
Blacks	13	86.7%	7.9
Other/Unknown	2	13.3%	--
Total Cases	**15**	**100.0%**	**1.5**
Kansas City			
Whites	0	0.0%	0.0
Blacks	6	100.0%	4.5
Other/Unknown	0	0.0%	--
Total Cases	**6**	**100.0%**	**1.3**
Outstate			
Whites	9	30.0%	0.3
Blacks	21	70.0%	15.8
Other/Unknown	0	0.0%	--
Total Cases	**30**	**100.0%**	**0.8**

*Per 100,000 population, based on 1997 population estimates.

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From 1997 to 1998, reported cases of gonorrhea in Kansas City increased by 35.5 percent (from 1,753 to 2,375 cases); St. Louis City cases increased by 30.1 percent (from 2,806 to 3,652 cases); Outstate cases increased by 11.9 percent (from 1,494 to 1,672 cases); and St. Louis County cases increased by 10.0 percent (from 1,603 to 1,764 cases).

Comment:

Large numbers of Missourians are infected with *Neisseria gonorrhoeae* each year, and African Americans continue to be very disproportionately affected. For all racial groups, the largest numbers of cases are reported from persons in their late teens and early twenties; among females, the 15–19 year old age group has the most reported cases. In 1998, the largest numbers of gonorrhea cases, and the highest rates, were reported from St. Louis City, followed by Kansas City, St. Louis County, and Outstate Missouri. Cases were reported from most Missouri counties. The annual number of reported gonorrhea cases in Missouri had decreased each year from 1989 to 1997; however, in 1998, a noticeable increase in reported cases occurred. The largest increase was seen in Kansas City, followed by St. Louis City; smaller increases were seen in St. Louis County and in Outstate Missouri.

Gonorrhea is a major cause of pelvic inflammatory disease, infertility, ectopic pregnancy, and chronic pelvic pain. Along with other inflammatory sexually transmitted diseases (STDs), it increases the transmissibility of HIV. Increases in reported gonorrhea cases, seen in all areas of Missouri during 1998, are a cause for concern. The largest burden of infection is in African Americans, among teenagers and young adults, and in urban areas. However, the infection, although on a smaller scale, is also occurring in other groups of persons and in non-urban areas.

Primary and Secondary (P&S) Syphilis

During 1998, 109 cases of P&S syphilis were reported in Missouri; the corresponding rate was 2.0. (An additional 165 cases of early latent [duration of less than one year] syphilis were reported during 1998.)

During the preceding year, 1997, 118 cases of P&S syphilis were reported in Missouri, compared to 8,550 cases reported nationwide (most recent U.S. data). The rate of P&S syphilis cases reported in Missouri (2.2) was approximately two-thirds the U.S. rate (3.2). Missouri ranked 19th among the fifty states in rates of reported P&S syphilis cases in 1997.

Of the 109 P&S syphilis cases reported in 1998, 54.1 percent were in males and 45.9 percent were in females. Ninety cases (82.6%) were in African Americans, and 11 (10.1%) were in whites. For 8 (7.3%) cases, race was not indicated. Table 2 shows the numbers and percentages of reported P&S syphilis cases in whites and African Americans for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

African Americans are disproportionately represented among reported P&S syphilis cases. The rate for cases reported in 1998 in African Americans (14.8) was 75 times the rate for cases in whites (0.2). Table 2 shows the rates of reported P&S syphilis cases in whites and African Americans for Missouri, St.

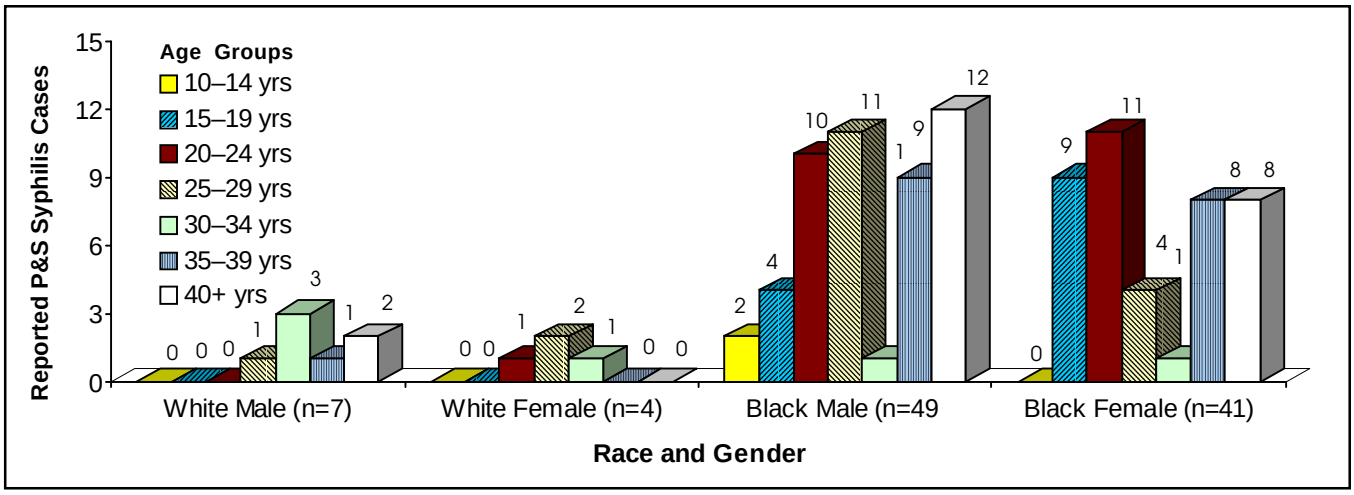
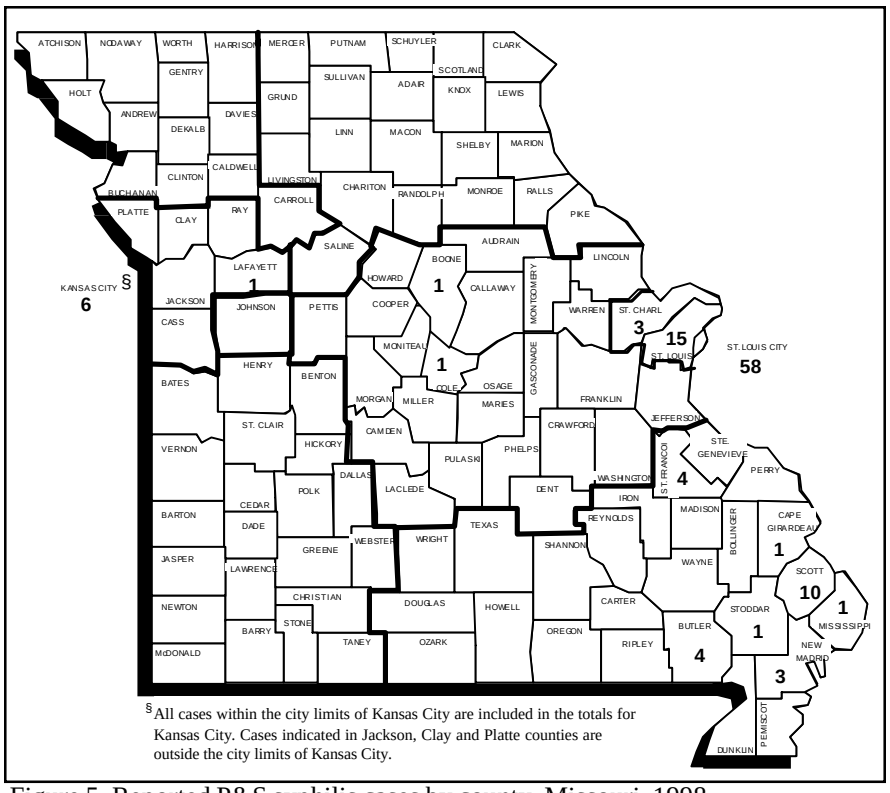


Figure 4. Reported P&S syphilis cases by race, gender and age group, Missouri, 1998.



§ All cases within the city limits of Kansas City are included in the totals for Kansas City. Cases indicated in Jackson, Clay and Platte counties are outside the city limits of Kansas City.

Figure 5. Reported P&S syphilis cases by county, Missouri, 1998.

Louis City and County, Kansas City, and Outstate Missouri.

The average age at time of diagnosis is higher for reported cases of P&S syphilis as compared to reported cases of chlamydia or gonorrhea. For reported cases of P&S syphilis in males during 1998, the largest proportion of cases (25.4%) were in the 40+ age group. For females, the largest proportion of cases (26.0%) were in the 20–24 year age group; however, 40.0 percent of all female cases were in women 30 years of age and older. Figure 4 shows the distribution of cases by age group for white males and females, and African American males and females.

Of the 109 P&S syphilis cases reported in 1998, 58 (53.2%) were from St. Louis City, followed by 30 (27.5%) from Outstate Missouri, 15 (13.8%) from St. Louis County, and 6 (5.5%) from Kansas City. Cases were reported from only 14 of the state's 114 counties. Figure 5 shows the number of P&S syphilis cases reported from each county in 1998.

The highest rate of reported P&S syphilis cases in 1998 was in St. Louis City (17.0), followed by St. Louis County (1.5), Kansas City (1.3), and Outstate Missouri (0.8).

Since 1993, when a syphilis outbreak in the St. Louis area was at its height, the number of annually reported cases of P&S syphilis in Missouri has been decreasing, although the rate of decrease has slowed during the past two years. The 109 cases reported in 1998 represented a 7.6 percent decline from the 118 cases reported in 1997. Figure 6 on page 10 shows the trends in reported P&S syphilis cases from 1984–1998 for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

From 1997 to 1998, reported cases of P&S syphilis increased by 30.4 percent (from 23 to 30 cases) in the Outstate area; most were associated with an outbreak in the Bootheel area. Reported cases from St. Louis County decreased by 48.3 percent (from 29 to 15 cases); reported St. Louis City cases decreased by 9.4 percent (from 64 to 58 cases). Six P&S syphilis cases were reported from Kansas City during 1998, compared with two the preceding year.

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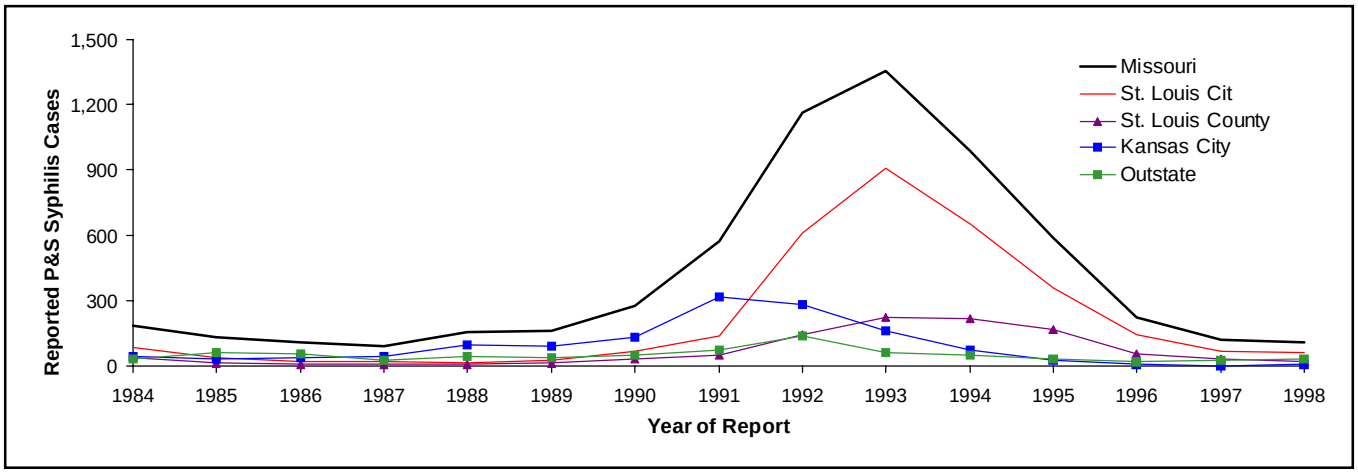

Figure 6. Reported P&S syphilis cases bygeographic area and year of report, Missouri, 1998.

(continued from page 9)

Comment:

The 109 cases of P&S syphilis reported in Missouri in 1998 were the smallest number of cases reported since the late 1980s. African Americans continue to be very disproportionately affected by syphilis, with few P&S syphilis cases being reported in whites. The average age at time of diagnosis is higher for reported cases of P&S syphilis as compared to reported cases of chlamydia or gonorrhea, and a noticeable number of cases are seen in persons ≥35 years of age.

In 1998, the largest numbers of P&S syphilis cases were reported from St. Louis City, followed by the Outstate area (most Outstate cases were associated with the Bootheel outbreak). The highest rates of reported P&S syphilis cases were from St. Louis City. The relatively limited geographic distribution of the disease in Missouri is indicated by the fact that only 14 of the state's 114 counties reported P&S syphilis cases in 1998.

Since 1993, when a syphilis outbreak in the St. Louis area was at its height, the number of annually reported cases of P&S syphilis in Missouri has been decreasing. However, the rate of decrease has slowed during the past two years, and the decrease from 1997 to 1998 was the smallest since 1993.

The number of reported cases of P&S syphilis in Missouri is small in comparison to other STDs such as gonorrhea and chlamydia. However, severe disease can result from untreated syphilis infection, and the presence of ulcerative syphilis lesions increases the transmissibility of HIV. In addition, significant resources must be devoted to control of even a relatively few number of cases. For all of these reasons, the control and eventual elimination of syphilis remains an important priority. The noticeable slowing of the rate of decline in reported P&S syphilis cases over the past two years, along with the increase in congenital syphilis cases in 1998 (see below), are causes for concern. The potential remains for the recurrence of significant outbreaks of syphilis in the state.

The Section of STD/HIV/AIDS Prevention and Care Services has received a five-year Syphilis Elimination Grant focusing on eliminating syphilis in St. Louis City by 2005. Strategies being planned as part of this effort include (but are not limited to): enhanced syphilis screening in the St. Louis criminal justice system, and increased screenings at homeless shelters, and at street and community site locations. For more information on the grant, contact Mary Hayes at (800) 359-6259 or (573) 751-6139.

Congenital Syphilis

Congenital syphilis is the result of transmission of *Treponema pallidum* from an infected mother to her infant during pregnancy or at the time of delivery. During the past five years, 162 cases have been reported in infants born to women who were Missouri residents. During 1998, 20 cases were reported in the state; the corresponding rate** was 27.0.

During the preceding year, 1997, 12 cases of congenital syphilis were reported in Missouri, compared to 1,049 cases reported nationwide (most recent U.S. data). The rate of congenital syphilis cases in Missouri (16.2) in 1997 was lower than the nationwide rate (26.9).

African American infants are disproportionately represented among reported congenital syphilis cases. Of the 20 cases reported in 1998, 16 (80.0%) were in African American infants.

Of the 20 congenital syphilis cases reported in 1998, 15 (75.0%) were known to be born to single (never married) mothers. Ten (50.0%) of the 20 congenital syphilis cases were known to be born to mothers who received no prenatal care. An additional four (20.0%) cases were born to mothers who had only one or two prenatal care visits.

Of the 20 congenital syphilis cases reported in 1998, 11 (55.0%) were from St. Louis County, 7 (35.0%) were from St. Louis City, and 2 (10.0%) were from Outstate Missouri (both from the Bootheel area). No cases were reported from Kansas City.

**All rates for congenital syphilis cases are per 100,000 live births.

In recent years, reported cases of congenital syphilis in Missouri peaked at 97 cases in 1993 (corresponding to the height of the syphilis outbreak in the St. Louis area), and then markedly declined to 12 reported cases in both 1996 and 1997. The 20 cases reported in 1998 represented a 66.7 percent increase from the 12 cases reported the previous year.

Comment:
In 1998, 20 cases of congenital syphilis were reported in Missouri. Numbers of reported cases had shown substantial declines each year from 1994 through 1996. In 1997, reported cases remained at the same level as the preceding year, but in 1998, the number reported increased noticeably. In 1998, most cases were from the St. Louis area, with the remainder from the Bootheel area. More cases were reported from St. Louis County (11) than from St. Louis City (7), but the case rate was highest in St. Louis City (122.3, vs 85.0 in St. Louis County).

African Americans were disproportionately represented among reported congenital syphilis cases. Most mothers of the congenital syphilis cases were single, and at least two-thirds had ≤2 prenatal visits.

A significant risk factor associated with many of the congenital syphilis cases was lack of, or inadequate, prenatal care by the mother. Adequate prenatal care, which includes syphilis testing, is vital to detecting and treating infection in pregnant women so that congenital syphilis in the infant can be prevented. It is also important to remember that by minimizing the number of new syphilis infections which occur in young adults, one can decrease the risk of congenital syphilis in the community.

Chlamydia

During 1998, 12,655 cases of chlamydia were reported in Missouri; the corresponding rate was 234.3. During the preceding year, 1997, 12,247 cases of chlamydia were reported in Missouri, with 526,653 cases reported nationwide (most recent U.S. data). The rate of reported chlamydia cases in Missouri (226.7) was slightly higher than the U.S. rate (207.0). Missouri ranked 13th among the fifty states in rates of reported chlamydia cases in 1997.

Table 3. Reported Chlamydia Cases and Rates by Geographic Area, Missouri, 1998

	Cases	%	Rate*
Missouri			
Whites	3,198	25.3%	67.8
Blacks	4,895	38.7%	807.0
Other/Unknown	4,562	36.0%	--
Total Cases	**12,655**	**100.0%**	**234.3**
St. Louis City			
Whites	133	4.6%	83.1
Blacks	1,684	57.8%	952.0
Other/Unknown	1,094	37.6%	--
Total Cases	**2,911**	**100.0%**	**851.5**
St. Louis County			
Whites	250	10.8%	30.5
Blacks	1,163	50.0%	707.4
Other/Unknown	911	39.2%	--
Total Cases	**2,324**	**100.0%**	**231.6**
Kansas City			
Whites	332	12.7%	111.0
Blacks	1,294	49.4%	976.6
Other/Unknown	992	37.9%	--
Total Cases	**2,618**	**100.0%**	**584.7**
Outstate			
Whites	2,483	51.7%	72.2
Blacks	754	15.7%	567.8
Other/Unknown	1,565	32.6%	--
Total Cases	**4,802**	**100.0%**	**133.1**

*Per 100,000 population, based on 1997 population estimates.

Of total chlamydia cases reported in 1998, the vast majority were in females (87.4%). This reflects the selective screening of females for chlamydia undertaken by the Missouri Infertility Prevention Project (MIPP). If similar widespread screening of males were also undertaken, it is expected that the number of diagnosed and reported cases in males would be much higher than is currently seen.

Of the 12,655 cases of chlamydia reported in 1998, 4,895 (38.7%) cases were known to have occurred in African Americans, 3,198 (25.3%) in whites, 33 (0.3%) in Asians, and 15 (0.1%) in Native Americans; in addition, 28 (0.2%) cases were classified as Other Race. For 4,486 (35.4%) cases, race was not indicated. Table 3 shows the numbers and percentages of reported chlamydia cases in whites and African Americans for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

African Americans are disproportionately represented among reported chlamydia cases. The rate for cases reported in 1998 in African Americans (807.0) was approximately 12 times the rate for cases in whites (67.8). Table 3

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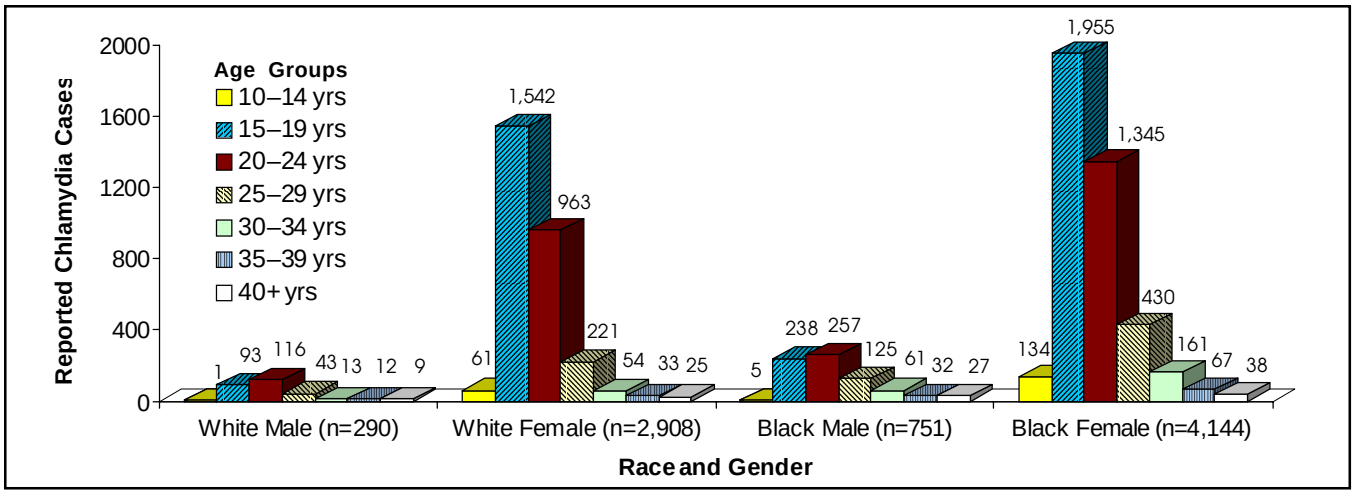

Figure 7. Reported chlamydia cases by race, gender and age group, Missouri, 1998.

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shows the rates of reported chlamydia cases in whites and African Americans for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

In 1998, slightly over half of reported chlamydia cases in females were in teenagers. Persons less than 20 years of age made up 50.5 percent of African American female cases, 55.2 percent of white female cases, 32.6 percent of African American male cases, and 33.1 percent of white male cases. Figure 7 shows the distribution of cases by age group for white males and females, and African American males and females.

Of the 12,655 chlamydia cases reported in 1998, the largest number, 4,802 (37.9%) were from Outstate Missouri, followed by 2,911 (23.0%) from St. Louis City, 2,618 (20.7%) from Kansas City, and 2,324 (18.4%) from St. Louis County. Only one county in Missouri did not report at least one chlamydia case in 1998. Figure 8 shows the number of chlamydia cases reported from each county in 1998.

The highest rate of reported cases in 1998 was in St. Louis City (851.5), followed by Kansas City (584.7), St. Louis County (231.6), and Outstate Missouri (133.1).

In 1998, the 12,655 reported cases of chlamydia represented a 3.3 percent increase from the 12,247 cases reported in 1997. Figure 9 shows the trends in

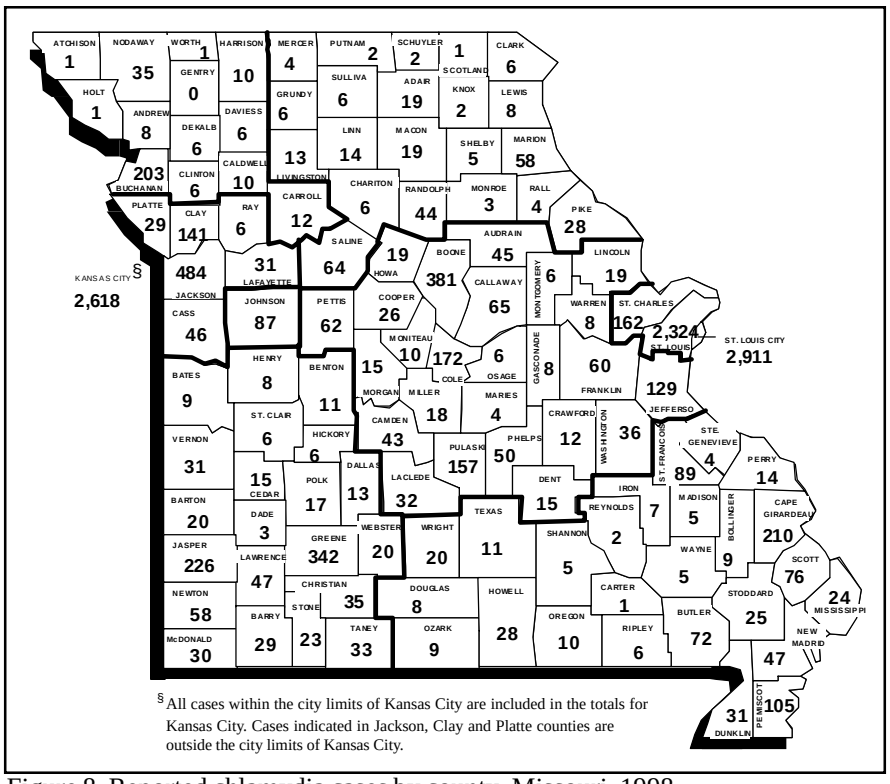

Figure 8. Reported chlamydia cases by county, Missouri, 1998.

reported chlamydia cases from 1984–1998 for Missouri, St. Louis City and County, Kansas City, and Outstate Missouri.

From 1997 to 1998, reported cases of chlamydia in St. Louis City increased by 9.8 percent (from 2,652 to 2,911 cases); reported St. Louis County cases increased by 5.9 percent (from 2,194 to 2,324 cases); and reported Outstate cases increased by 1.2 percent (from 4,744 to 4,802 cases). Reported Kansas City cases decreased by 1.5 percent (from 2,657 to 2,618 cases).

Comment:
Large numbers of Missourians are infected with *Chlamydia trachomatis* each year. Because of incomplete information, the race of over one-third of reported cases is not known. However, based on available data, it appears that African Americans in Missouri are disproportionately affected by chlamydia, although not to the extent seen with

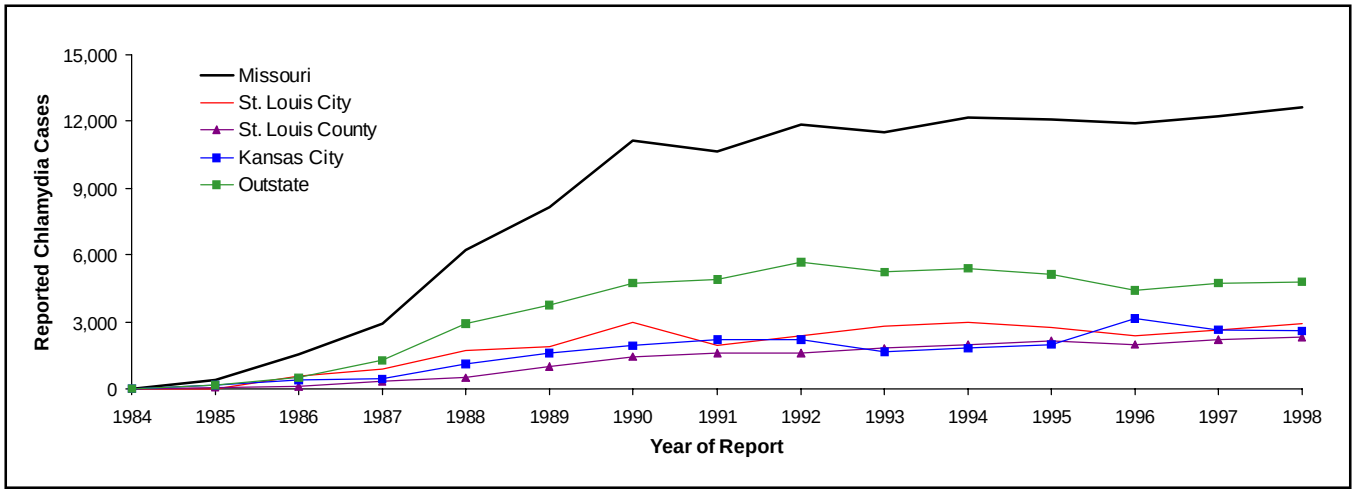

Figure 9. Reported chlamydia cases bygeographic area and year of report, Missouri, 1998.

syphilis and gonorrhea. For all racial groups, the largest numbers of cases are reported from persons in their late teens and early twenties; among females, the 15–19 year old age group has the most reported cases.

In 1998, the largest numbers of chlamydia cases were reported from Outstate Missouri, followed by St. Louis City, Kansas City, and St. Louis County. However, the highest case rates were in St. Louis City, followed by Kansas City, St. Louis County, and Outstate Missouri. Only one Missouri county did not report a chlamydia case in 1998.

No pronounced upward or downward trends have been seen in reported chlamydia cases in Missouri in the past few years; there have been very slight increases in the numbers of cases reported during the past two years. In 1998, the largest increases in reported cases were in St. Louis City and St. Louis County; in Kansas City, a very small decrease was seen.

Chlamydial infection is the most common bacterial STD in the United States today, and a major cause of pelvic inflammatory disease, infertility, ectopic pregnancy, and chronic pelvic pain. The large numbers of *C. trachomatis* infections that are continuing to occur in Missouri, the insidious nature of the infection, and its potentially severe consequences (especially in women) are all reasons for concern. The largest burden of infection is among teenagers and young adults, and in urban areas. As with other STDs, African Americans are disproportionately represented, although less so than with gonorrhea and syphilis. Chlamydia appears more widely distributed in the community than either syphilis or gonorrhea, and large numbers of cases occur in whites as well as in African Americans.

Because chlamydial infection frequently occurs without symptoms, the disease is often not diagnosed—or, in some instances, not diagnosed until complications develop. Consequently, screening of persons at increased risk for *C. trachomatis* infection, such as young, sexually active women, is very important in finding infected persons so that they (and their sex partners) can be treated and further spread of infection halted, and so that the extent of the infection can be determined. The numbers of chlamydia cases reported, and their distribution, significantly depend on where and in what populations screening is taking place. In this regard, the Missouri Infertility Prevention Project (MIPP) has been important in making chlamydia screening available to large numbers of young women throughout the state. This results in many additional infected individuals being detected, thus providing a more representative picture of chlamydia in Missouri.

Medical providers should promptly report, as required by Missouri law, all cases of chlamydial infection, gonorrhea, and syphilis to their local health department, or to MDOH's Office of Surveillance at (573) 751-6463.

STD education courses for medical professionals are available through the St. Louis STD/HIV Prevention Training Center. For more information, call (314) 747-0294 or 1522, or FAX (314) 362-1872, or visit their web site at: **http://www.umsl.edu/services/itc/std_ptc.html**.

Recommendations from the Centers for Disease Control and Prevention (CDC) for the treatment and prevention of sexually transmitted diseases were updated in 1998:**1998 Guidelines for Treatment of Sexually Transmitted Diseases, MMWR 1998;47(No. RR-1)**. These guidelines are available on the World Wide Web at: **http://www.cdc.gov/epo/mmwr/preview/ind98_rr.html**.

A number of links to STD-related web sites are available on the Missouri Department of Health Home Page at: **http://www.health.state.mo.us/GLRequest/ID/LinksSTD.html**.

1998–99 Influenza Summary

Mary E. Kliethermes, R.N., B.S.
Section of Communicable Disease Control and Veterinary Public Health

The 1998–99 influenza season began on November 9, 1998, when an adult visitor from the state of Louisiana was diagnosed by the influenza rapid test method at a St. Louis Hospital. The isolate was forwarded to the Missouri State Public Health Laboratory (SPHL) and tested by viral culture method as influenza A, subtyped H3N2. On December 24, 1998, the first laboratory-confirmed case on a Missouri resident was reported as influenza A, subtyped as H3N2. Both isolates were sent to the Centers for Disease Control and Prevention (CDC). The two specimens were the first Missouri laboratory-confirmed cases of influenza A/Sydney/05/97-like (H3N2) for the 1998–99 season. This type was very similar to the influenza strain included in the vaccine for the 1999–2000 season.

There were 751 laboratory-confirmed cases of influenza reported in Missouri during the 1998–99 season. Of the 751 confirmed cases, 552 (74.3%) were type A, with 97 subtyped as H3N2. There were 193 (25.7%) confirmed cases of type B influenza reported in Missouri. The number of confirmed cases of influenza type A began increasing during week 52 and peaked during week 8, the week of February 21–28, 1999, then gradually returned to base line levels by week 16. See Figure 1.

Figure 2 shows laboratory-confirmed influenza cases by county of residence.

From December 1998 through March 1999, the Department of Health received five reports of influenza-like illness outbreaks in long-term care facilities. Three of the five outbreaks were confirmed as type A, two by rapid test method and one by viral culture performed by the SPHL.

From the middle of January 1999 to the middle of March 1999, nine schools

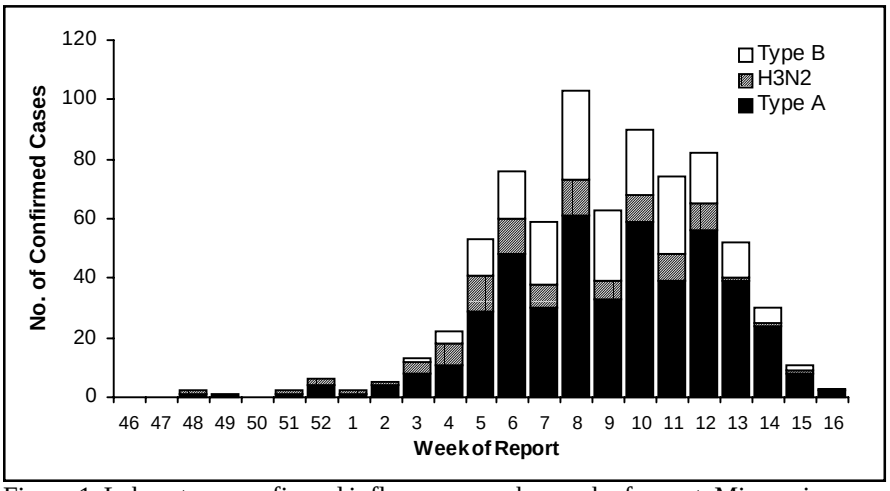

Figure 1. Laboratory-confirmed influenza cases by week of report, Missouri, 1998–99 season.

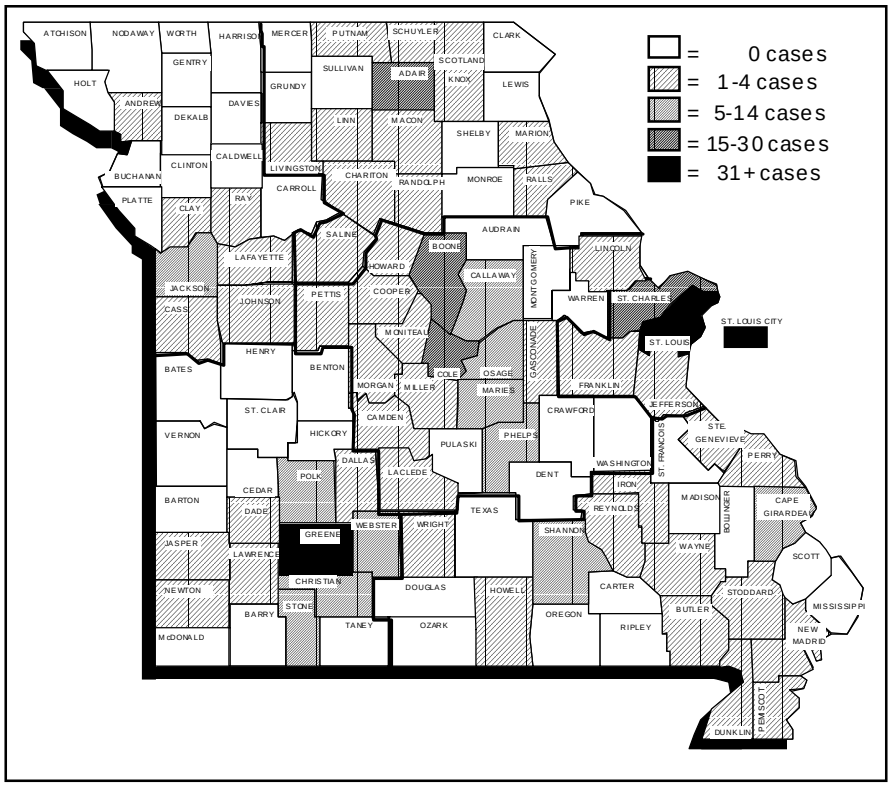

Figure 2. Laboratory-confirmed influenza cases by county of residence, Missouri, 1998–99 season.

cancelled classes from one to three days because of increased student, teacher, and staff absenteeism due to influenza-like illness. One group home, one university student health center, two correctional facilities and three communities reported to their local public health agency outbreaks of increased influenza-like illness. Two schools, one in the eastern area of the state and the other in the central area, reported increased incidence of influenza-like illnesses in students, but did not close. Cases related to the university outbreak were confirmed as both influenza type A, subtyped as H3N2, and also influenza,

type B. One of the community outbreaks occurred in Howard County and was confirmed as influenza, type B; another in Sedalia was confirmed as influenza A, (H3N2). A case related to a school in the eastern area of the state was identified as influenza A.

The established Missouri active surveillance sites reporting to local public health agencies submitted data showing a rise of influenza-like illness during week 2 that peaked during week 8 and gradually declined by week 16. The prolonged 1998–99 influenza season is best demonstrated by the slope of the curve that forms an irregular bell shape that rises higher when compared to the 10-year average curve. See Figure 3. The Missouri U.S. Influenza Sentinel Physicians reporting to CDC submitted data showing a slow irregular increase of influenza-like illness beginning in week 42, peaking during week 5, and gradually returning to baseline levels by week 14.

In Missouri, the number of pneumonia and influenza deaths rose above the previous 10-year average during weeks 46, 48, 49, 52 and 16. See Figure 4. The mortality experience in Missouri this season appears to be much less than that of the 1997–98 season and much less than reported from the nation as a whole. Nationally, beginning with the week ending January 30, 1999, the proportion of deaths attributed to pneumonia and influenza reported by 122 cities in the United States exceeded the epidemic threshold for 12 consecutive weeks. During the week ending March 13, 1999, the proportion of deaths attributed to pneumonia and influenza peaked nationally at 8.8 percent.

During the 1998–99 influenza season, CDC performed antigenic characterization of influenza viruses submitted to their laboratory through state health departments. Of the 327 isolates collected in the United States from October 4 through May 1, and antigenically characterized at CDC, 295 (90%) were similar to the 1998–99 A(H3N2) vaccine strain, A/Sydney/5/97, and 32 (10%) had antigenically drifted from A/Sydney/5/97 based on hemagglutination inhibition testing. Six United States influenza A(H1N1) isolates were characterized as A/Bayern/7/95-like viruses, antigenically distinct from A/Beijing/262/95, the 1998–99 A(H1N1) vaccine strain. However, the 1998–99 A(H1N1) vaccine strain produced high titers of antibodies that cross-react with A/Bayern/7/95. All 180 antigenically characterized B isolates were similar to the recommended type B vaccine strain, B/Beijing/184/93. Seventy-eight percent of the Missouri isolates sent to CDC for confirmation testing were reported as influenza A/Sydney/05/97-like (H3N2) and 22 percent were reported as influenza B/Beijing/184/93-like.

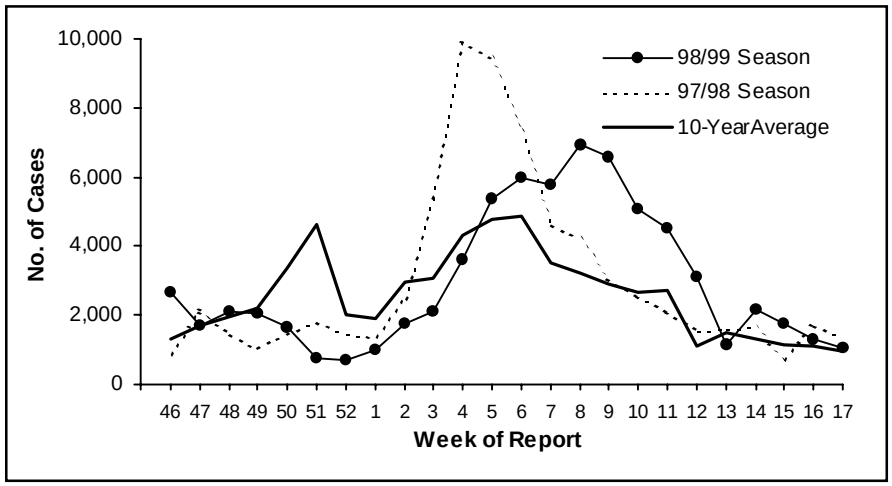

Figure 3. Influenza-like illness by week of report, Missouri, 1998/99 season, 1997/98 season and 10-year average.

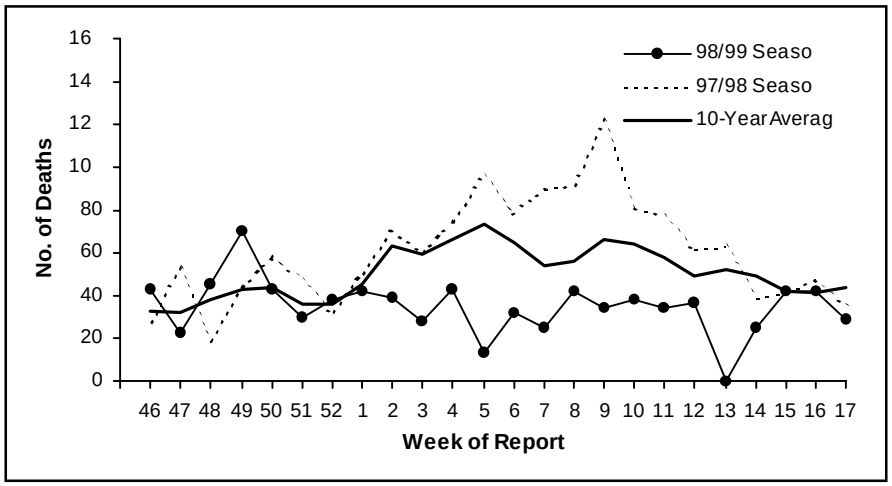

Figure 4. Pneumonia and influenza deaths by week of report, Missouri, 1998/99 season, 1997/98 season and 10-year average.

The Food and Drug Administration Vaccines and Related Biological Products Advisory Committee (VRBPAC) has recommended that the 1999–2000 trivalent influenza vaccine for the United States contain A/Beijing/262/95-like (H1N1), A/Sydney/5/97-like (H3N2), and B/Beijing/184/93-like hemagglutinin antigens. For the B/Beijing/184/93-like antigen, manufacturers in the United States will use the antigenically equivalent B/Yamanashi/166/98 virus because of its growth properties and because it is representative of currently circulating B viruses. Influenza vaccine recommendations for 1999–2000 can be found on pages 38–39 of this issue.

Global Climate Change and Public Health

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Global Warming

There is a growing consensus among the scientific establishment that the earth's temperature is warming. The time series in Figure 1 shows, from 1880 to 1998, annual global surface mean temperature anomalies. 1998 was the warmest year since widespread instrument records began in the late Nineteenth Century. Seven of the ten warmest years have occurred in the 1990s.

The cause of this warming is the subject of much debate. Perceived causes include El Niño, deforestation, the urban heat island effect, naturally occurring cyclical warming of the earth's surface, naturally occurring cyclical warming of the sun, and atmospheric pollution caused by man, also known as greenhouse gas emissions. Much attention has been focused on the impact of greenhouse gas emissions because it is one of the few potential factors that can be mitigated.

Greenhouse gases are intensified by the combustion of fossil fuels. See Figure 2. Increased energy use in cars, homes and for industrial purposes raises the concentrations of carbon dioxide (CO_2) and other gases in the atmosphere. CO_2 has increased 30 percent, from 280 to 360 parts per million, since 1860. The overall emissions of greenhouse gases are growing at about one percent per year. Fluctuations in temperature and CO_2 have mirrored each other for 160,000 years. CO_2 levels are higher now than any time during that period. Predictions related to the effect of greenhouse gases include:

1. Atmospheric concentrations of CO_2 and other gases will continue to increase;

2. Increases in the concentrations of these gases will lead to changes in climate such as temperature, precipitation, and storm frequency and severity; and

3. Changes in climate will have significant economic, ecosystem and human health effects.

The Public Health Impact

Factors that affect the vulnerability of certain populations, such as poor sanitation, crowding, poverty and food scarcity, make it difficult to quantify the impact of global warming in terms of lives lost or further deterioration in the quality of life for most of the world's population. However, extreme climatic changes for which vulnerable populations are not prepared would most certainly increase hunger, homelessness, and diseases such as malaria and typhoid.

Here in Missouri, a few degrees increase in global warming would cause localized variances in weather conditions that could be extreme. Cold spells still would occur in winter but hotter temperatures in the summer would be more extreme and more common. Missouri already experiences irregular, intense heat waves that impact on health. For example, in Missouri there were 819 heat-related illnesses reported in 1995, 512 reported in 1990 and 470 reported in 1998, but only 35 reported in 1992. The final analysis of heat-related mortality is not complete as

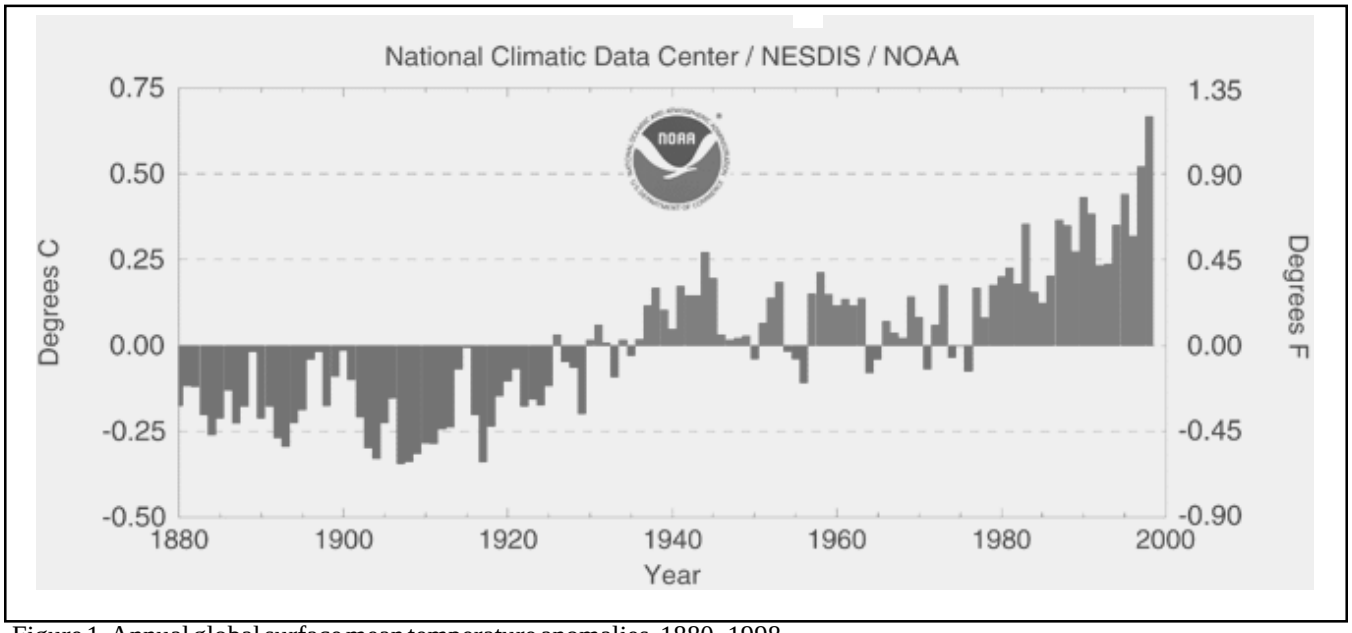

Figure 1. Annual global surface mean temperature anomalies, 1880–1998.

of this writing, but there may be in excess of 65 heat-related deaths in 1999 compared to 12 in 1998 and 9 in 1997. See Figures 3 and 4. During 1979–96, the years for which data are available, Missouri had the second highest age-adjusted rate for heat-related deaths "due to weather conditions" (3 per million population) in the United States.

Fluctuations in weather patterns would cause some areas to become drier and other areas to become wetter, therefore changing and possibly expanding the habitat of disease-carrying insect vectors. Nighttime temperatures are rising faster than daytime temperatures. The range of many disease-carrying insects is limited by nighttime temperatures. Mosquitoes are common vectors in Missouri. If the climate becomes wetter and warmer, mosquito populations could increase, thereby increasing the risk of exposures to the diseases which they carry. For example, St. Louis encephalitis, Eastern equine encephalitis, and LaCrosse encephalitis are more common in years when the temperature is higher than normal. Malaria kills an estimated two million people a year worldwide. In recent years, cases of malaria contracted from local mosquitoes have been reported in New York, New Jersey, Virginia, Texas, Georgia, Florida and Michigan.

If weather patterns change, storms could become more intense. Precipitation could come in intense, short bursts causing more localized flash flooding. Severe weather such as high winds and tornadoes could increase. No one can forget the devastating floods of 1993, but many do not know that in 1998, 18 lives were lost in Missouri due to flooding. With an increased volatility in climate, health problems associated with natural disasters would increase.

Finally, ground level ozone air pollution concentrations increase during heat waves. Ozone is a major component of smog that has been shown to reduce lung function, induce respiratory inflammation, and aggravate respiratory illnesses such as asthma. Asthma affects

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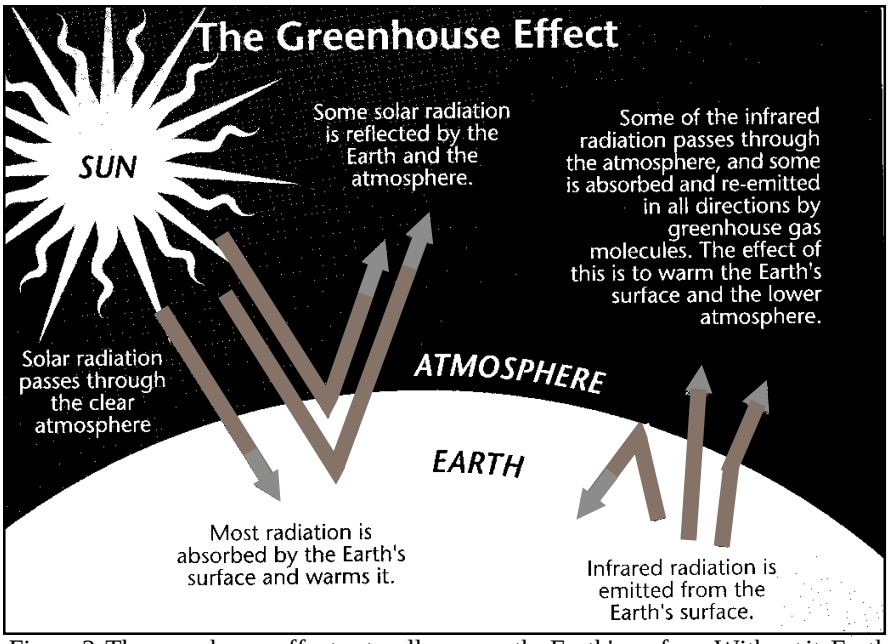

Figure 2. The greenhouse effect naturally warms the Earth's surface. Without it, Earth would be 60° F cooler than it is today—uninhabitable for life as we know it.

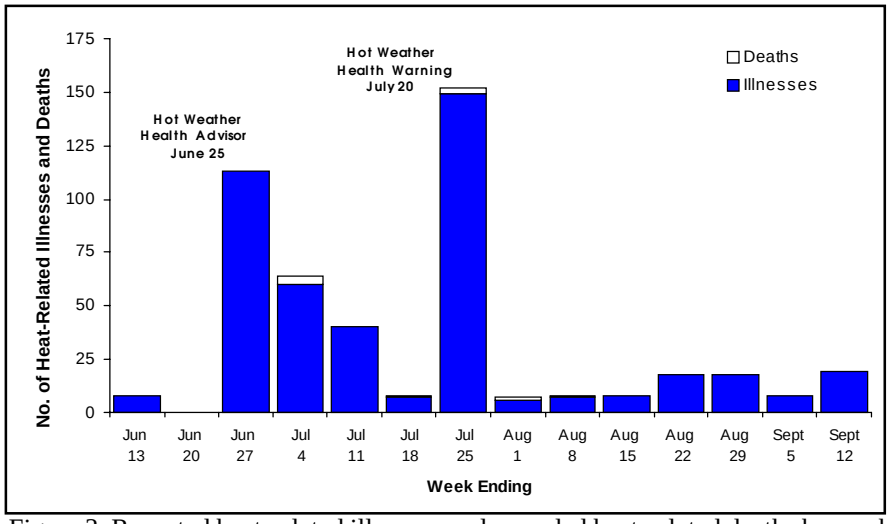

Figure 3. Reported heat-related illnesses and recorded heat-related deaths by week of occurrence, Missouri, Summer 1998.

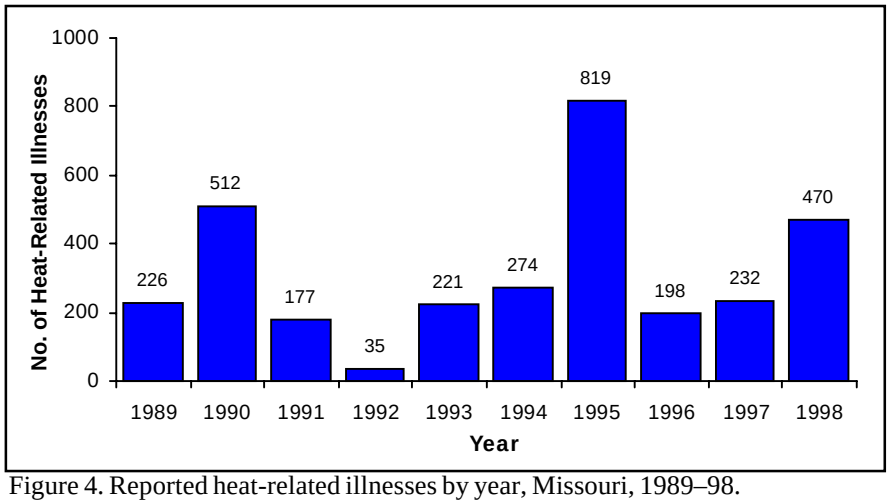

Figure 4. Reported heat-related illnesses by year, Missouri, 1989–98.

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over 14 million Americans, including five million children. In 1990, the estimated cost of asthma was $6.2 billion and by 2000 it is expected to reach $14.5 billion. St. Louis is already classified as a moderate nonattainment area for ozone.

What Public Health Leaders Can Do

Although the debate continues as to a final determination of cause, public health officials are beginning to study the implications of global warming and develop mitigation plans for potential increases in population-based illnesses such as vector-borne or heat-related illnesses. Public health leaders have learned that, in public health as in medicine, sometimes it is critical to begin treatment before being absolutely sure of what is wrong.

Disease outbreaks are impacted by a complex system of biological, infrastructure and environmental factors that are easier dealt with by industrialized, wealthy nations. For example, cholera will probably not become a threat in epidemic proportions in Missouri as long as water treatment systems are maintained and effective. In 1995, six cases of dengue fever were reported in Texas, while 4,000 were reported in close proximity, in Mexico. The low case rate in Texas has been attributed to better housing, air conditioning, vector control programs and socioeconomic conditions.

Dr. Denny Donnell, Missouri State Epidemiologist, says "Considering the high number of heat-related illnesses reported in Missouri in 1998, one would expect to have seen more heat-related deaths. This lower number of deaths may reflect the effectiveness of public health efforts to educate the public to recognize heat-related illness and seek medical treatment promptly."

After a severe heat emergency in 1980 that took 294 lives in Missouri, the state and the municipalities of St. Louis, Kansas City and Springfield took steps to plan for future heat waves. The top ten leading factors that put people at risk have been identified. These include the inability to care for oneself, such as the very young or elderly. Also, urban building design with flat, black roofs and poor air circulation creates a risk for those living on the top floor of a building. City and social service agencies have signed formal contracts to coordinate services. The Salvation Army and Red Cross provide shelters, the AmerenUE utility company provides window air conditioners on loan, and senior centers reach out to high-risk seniors. Finally, state and city officials have agreed on a common language for hot weather health advisories.

In March 1998, the Environmental Protection Agency, the Centers for Disease Control and Prevention, the American Medical Association, the American Public Health Association, the National Environmental Health Association and the National Institutes of Health co-sponsored the first joint conference on *Emerging Public Health Threats and the Role of Climate Change*. This conference signified the first major step toward the realization that public health leaders must define their role and accept accountability to respond to this public health threat.

In order for public health officials in Missouri to meet this challenge, they should consider the following key responsibilities:

- Identifying the diseases associated with changing climatic conditions through better research and surveillance techniques;
- Understanding the complex systems impacting public health, including climatic changes;
- Assessing the risks to certain vulnerable populations such as the poor, elderly or the very young;
- Informing the public of emerging trends in disease;
- Informing the public about how to minimize their risk;
- Encouraging interventions like heat warning systems, better urban building design and energy conservation;
- Improving our emergency response capacity and early warning systems;
- Involving non-governmental community agencies and private entities in the development of effective interventions

Public health leaders have effectively identified significant risks to public health over the past century. They have identified the need for better sanitation practices, declared smoking a public health risk, spoken out about sexually transmitted diseases, identified violence as a public health risk, and developed interventions to help curtail illness associated with both communicable and chronic diseases. Recognizing global warming as a potential public health threat that can be mitigated through traditional public health interventions and practices is critical to the public health system's readiness to reduce illness and death associated with extreme climatic events.

Thanks to Lauren Holtkamp for her assistance in obtaining statistics for this article.

See pages 19–20 for 20 simple steps that you and your family can take to help reduce global warming.

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(continued on page 27)

20 Simple Steps to Reduce Global Warming

Whenever you save energy—or use it more efficiently—you reduce the demand for gasoline, oil, coal and natural gas. Less burning of these fossil fuels means lower emissions of carbon dioxide, the major contributor to global warming. Right now the United States releases about 40,000 pounds of carbon dioxide per person each year. If we can reduce energy use enough to lower greenhouse gas emissions by about 2% a year, in ten years we will "lose" about 7,000 pounds of carbon dioxide emissions per person.

Here are 20 simple steps that can help cut your annual emissions of carbon dioxide by thousands of pounds. The carbon dioxide reduction shown for each action is an average saving.

HOME APPLIANCES

1. Run your dishwasher only with a full load. Use the energy-saving setting to dry the dishes. Don't use heat when drying.
   Carbon dioxide reduction: 200 pounds a year.

2. Wash clothes in warm or cold water, not hot.
   Carbon dioxide reduction (for two loads a week): up to 500 pounds a year.

3. Turn down your water heater thermostat; 120 degrees is usually hot enough.
   Carbon dioxide reduction (for each 10-degree adjustment): 500 pounds a year.

HOME HEATING AND COOLING

4. Don't overheat or overcool rooms. Adjust your thermostat (lower in winter, higher in summer).
   Carbon dioxide reduction (for each 2-degree adjustment): about 500 pounds a year.

5. Clean or replace air filters as recommended. Cleaning a dirty air conditioner filter can save 5% of the energy used.
   Carbon dioxide reduction: About 175 pounds a year.

SMALL INVESTMENTS THAT PAY OFF

6. Buy energy-efficient compact fluorescent bulbs for your most-used lights.
   Carbon dioxide reduction (by replacing one frequently used bulb): about 500 pounds a year.

7. Wrap your water heater in an insulating jacket.
   Carbon dioxide reduction: Up to 1,000 pounds a year.

8. Install low-flow shower heads to use less hot water.
   Carbon dioxide reduction: Up to 300 pounds a year.

9. Caulk and weatherstrip around doors and windows to plug air leaks.
   Carbon dioxide reduction: Up to 1,000 pounds a year.

10. Ask your utility company for a home energy audit to find out where your home is poorly insulated or energy-inefficient.
    Carbon dioxide reduction: Potentially, thousands of pounds a year.

GETTING AROUND

11. Whenever possible, walk, bike, carpool or use mass transit.
    Carbon dioxide reduction (for every gallon of gasoline you save): 20 pounds.

12. When you buy a car, choose one that gets good gas mileage.
    Carbon dioxide reduction (if your new car gets 10 mpg more than your old one): about 2,500 pounds a year.

REDUCE, REUSE, RECYCLE

13. Reduce waste: Buy minimally packaged goods; choose reusable products over disposable ones; recycle.
    Carbon dioxide reduction (if you cut down your garbage by 25%): 1,000 pounds a year.

14. If your car has an air conditioner, make sure its coolant is recycled whenever you have it serviced.
    Equivalent carbon dioxide reduction: Thousands of pounds.

HOME IMPROVEMENTS

15. Insulate your walls and ceilings; this can save about 25% of home heating bills.
    Carbon dioxide reduction: Up to 2,000 pounds a year.

16. If you need to replace your windows, install the best energy-saving models.
    Carbon dioxide reduction: Up to 10,000 pounds a year.

17. Plant trees next to your home and paint your home a light color if you live in a warm climate, or a dark color in a cold climate.
    Carbon dioxide reduction: About 5,000 pounds a year.

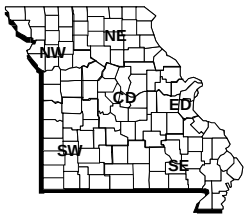
18. As you replace home appliances, select the most energy-efficient models.
    Carbon dioxide reduction (if you replace your old refrigerator with an efficient model): 3,000 pounds a year.

SCHOOLS, BUSINESS, AND COMMUNITIES

19. Reduce waste and promote energy-efficient measures at your school or workplace. Work in your community to set up recycling programs.
    Carbon dioxide reduction (for every pound of office paper recycled): 4 pounds.

20. Be informed about environmental issues. Keep track of candidates' voting records and write or call to express concerns.
    Carbon dioxide reduction (if we vote to raise U.S. auto fuel efficiency): Billions of pounds.

Source: Environmental Defense Fund Web Site at **http://www.edf.org**.



Missouri Department of Health
Division of Environmental Health and Communicable Disease Prevention

QUARTERLY DISEASE REPORT

Reporting Period*
April - June 1999

	Districts											3 Month State Totals		Cumulative		
	CD	** ED	NE	** NW	SE	** SW	*** OTHER	Kansas City	St. Louis City	St. Louis Co.	Spfd. Greene Co.	1999	1998	For 1999	For 1998	5 YR MEDIAN
Vaccine Preventable																
Influenza	14	10	2	3	7	2		3	19	71	2	133	12	824	1073	227
Measles	0	0	0	0	0	0		0	0	0	0	0	0	0	0	1
Mumps	0	0	0	0	0	0		0	0	0	0	0	1	0	3	3
Pertussis	0	0	0	1	0	0		3	1	0	0	5	7	15	16	17
Viral Hepatitis																
A	4	3	0	7	23	16		5	1	6	27	92	172	204	350	511
B	1	3	0	1	2	6		17	11	9	2	52	62	97	125	193
C	0	0	0	1	0	1		19	0	1	0	22	2	59	5	N/A
Non-A Non-B	0	0	0	0	0	0		0	0	0	0	0	0	0	1	8
Unspecified	0	0	0	0	0	0		0	0	0	0	0	0	0	2	1
Meningitis																
Meningococcal Disease	1	2	0	1	1	1		3	0	0	2	11	5	35	13	29
Meningococcal Other	2	1	1	0	0	0		1	4	3	1	13	16	24	39	24
Enteric Infections																
Campylobacter	22	4	7	22	23	22		12	8	28	12	160	144	247	213	258
E. Coli O157:H7	4	0	0	3	2	2		0	0	0	1	12	9	17	12	13
Salmonella	55	13	8	30	27	25		18	17	20	8	221	171	300	240	231
Shigella	21	8	0	19	0	60		8	50	75	16	257	31	366	51	180
Parasitic Infection																
Cryptosporidiosis	4	0	0	0	0	0		0	0	1	1	6	7	11	8	N/A
Giardiasis	23	15	21	8	4	15		13	37	26	10	172	142	283	275	275
Respiratory Diseases																
Legionellosis	0	0	0	1	1	1		0	0	1	2	6	2	8	8	8
Sexually Transmitted																
AIDS	12	4	0	8	4	11	4	31	32	9	3	118	148	191	222	177
HIV Infection	19	6	4	11	6	6	1	28	31	14	9	135	112	223	211	N/A
Chlamydia	270	118	78	156	221	318		790	871	636	****	3458	2800	6959	5645	N/A
Gonorrhea	80	19	20	33	115	46		520	553	322	****	1708	2514	3550	4152	N/A
P & S syphilis	1	0	0	0	1	1		5	7	4	****	19	23	50	57	N/A
Tuberculosis																
TB Disease	3	1	2	0	9	0	1	7	8	11	1	43	45	77	73	N/A
TB Infections	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zoonotic																
Ehrlichiosis	3	0	0	1	0	1		0	0	0	1	6	0	6	0	N/A
Lyme-like Disease	0	0	0	0	0	0		0	0	0	0	0	6	0	6	20
Rabies (Animal)	0	0	0	0	4	0		0	0	0	0	4	12	9	20	14
Rocky Mountain Spotted Fever	2	1	0	3	0	0		0	0	1	0	7	2	8	2	6
Tularemia	3	0	1	0	0	2		0	0	0	0	6	3	6	3	5

Outbreaks
Foodborne - 4
Waterborne - 1
Salmonella - 2
Scabies - 1
Shigella - 1
Other - 2

Low Frequency Vaccine Preventable Diseases
Diphtheria
Hib Meningitis
Hib other invasive - 8
Polio
Rubella - 2
Tetanus

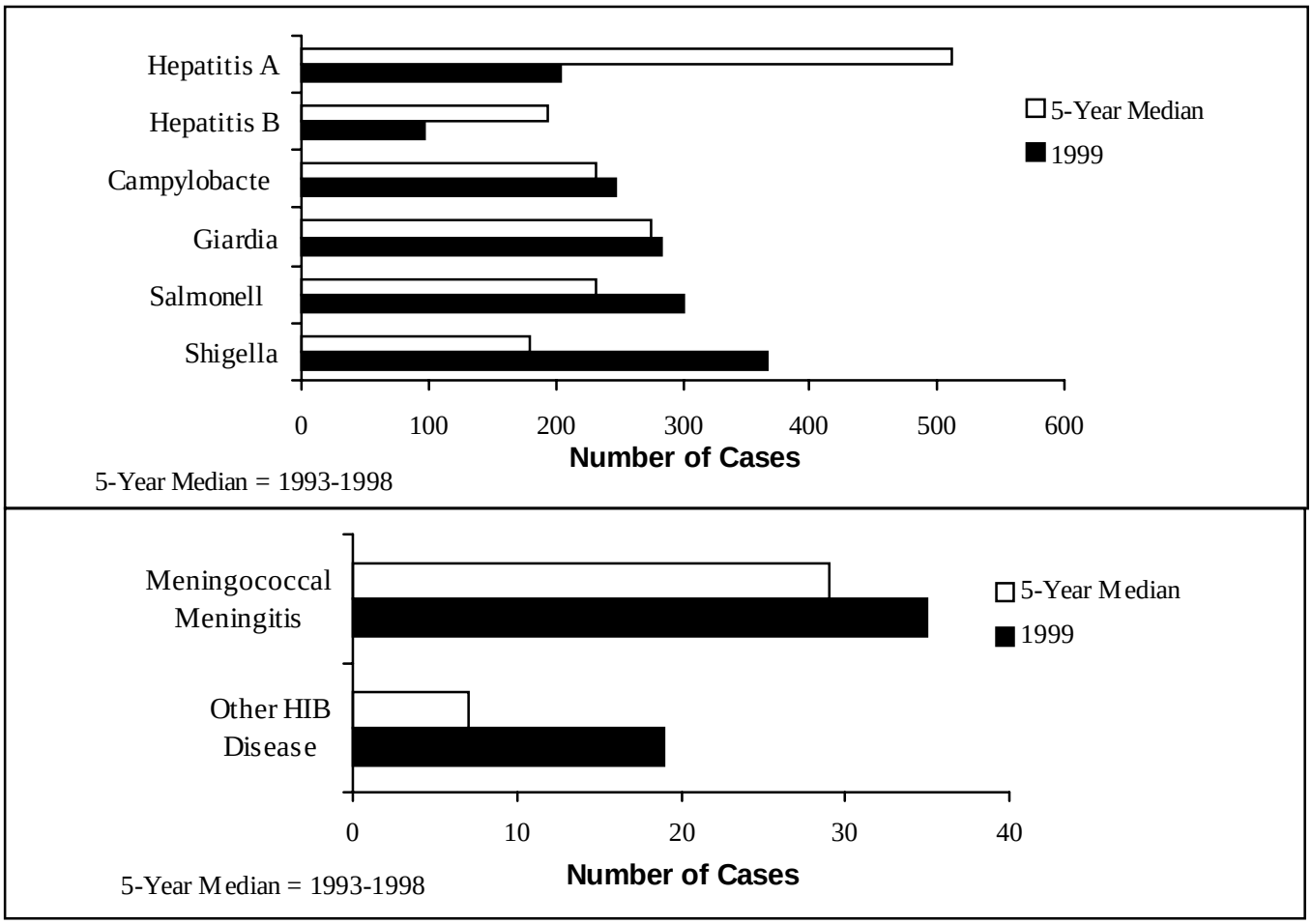
Low Frequency Diseases
Anthrax
Botulism
Brucellosis
Chancroid
Cholera
Encephalitis
Granuloma Inguinale
Kawasaki Disease - 4
Leptospirosis
Listeria - 4
Lymphogranuloma Venereum
Plague
Psittacosis
Rabies (human)
Reye syndrome
Rheumatic fever, acute
Streptococcal Disease, Invasive, Grp A - 9
Streptococcus pneumoniae, Drug Resistant Invasive Disease
Toxic Shock Syndrome - 1
Trichinosis
Typhoid Fever

Due to data editing, totals may change

*Reporting Period Beginning April 4, 1999 and Ending June 26.
**Totals do not include Kansas City, St. Louis City, St. Louis County, or Springfield
***State and Federal Institutions
****Included in SW District
N/A Data unavailable

TEAR OUT FOR FUTURE REFERENCE

Disease Reports, January–June 1999 and 5-Year Median



Viral Hepatitis

The 204 cases of hepatitis A reported during the January–June, 1999 time period represent a decrease of 41.7%, from the 350 cases of hepatitis A during January–June 1998. The bulk of the cases are still being reported from the Southwestern Health District. The 204 cases represent a decrease of 60.1% from the five-year median of 511.

Hepatitis B declined 22.4% from 125 in 1998 to 97 in 1999 from the six-month period and is 49.7% below the five-year six-month median for January–June of 193 cases.

Enterics

Campylobacter rose by 16.0% during the monthly time period from 213 cases in 1998 to 247 cases in 1999. It fell 4.3% from the five-year median of 258 cases. Salmonella increased 25.0% from 240 cases in 1998 to 300 cases in 1999. This is an increase of 29.9% over the five-year median of 231 cases. Shigellosis increased 617.6% from 51 cases in 1998 to 366 cases in 1999 and 103.3% from the five-year median of 180. The large increase in cases was due to outbreaks in daycare facilities and schools in the Southwestern and Eastern health districts. Pulsed Field Gel Electrophorosis testing of specimens from these outbreaks found different subtypes indicating these outbreaks were unrelated to each other.

Parasites

Giardiasis increased slightly by 2.9% from 275 cases in 1998 to 283 cases in 1999 for the January–June time period. The number of cases for the six-month period for 1998 is the same as the five-year median for the time period.

Meningitis

Meningococcal meningitis rose by 169.2% from 13 cases in 1998 to 35 cases in 1999. This is an increase of 20.7% from the five-year median of 29 cases.

Hib Disease

No cases of Hib meningitis were reported for this time period in 1999. No cases were reported for this time period as well in 1998, 1997 and 1996. Other invasive Hib disease rose 171.4% from 7 cases in 1998 to 19 cases in 1999. The number of cases for the six-month period for 1998 is the same as the five-year median for the time period.

Missouri Department of
HEALTH
Division of Environmental Health and Communicable Disease Prevention
Section of STD/HIV/AIDS Prevention and Care Services
P.O. Box 570, Jefferson City, MO 65102-0570 ▪ 573-751-6439 ▪ FAX 573-751-6447

HIV/AIDS Case Management Contractors

TEAR OUT FOR FUTURE REFERENCE

Northwest Region

St. Joseph/Buchanan Co. Health Department (1½)

Central Region

A = Adair Co. Health Department (¾)

M = Marion Co. Health Department (¾)

R = Regional AIDS Interfaith Network (2)

P = Pettis Co. Health Department (½)

C = Cole Co. Health Department (½)

St Louis Region

St. Louis Department of Health and Hospitals (11)

Kansas City Region

Kansas City Health Department (10)

Southeast Region

B = Butler Co. Health Department (1)

G = Cape Girardeau Co. Public Health Center (1)

F = St. Francois Co. Health Department (1)

Southwest Region

S = Springfield/Greene Co. Health Department (5½)

J = Joplin City Health Department (1½)

N = Newton Co. Health Department (½)

(#) = Number of service coordination positions funded through DOH contracts.

Change in Financial Eligibility Criteria for Missouri's Statewide AIDS Drug Assistance Program (ADAP)

The financial eligibility criteria for the Missouri Statewide AIDS Drug Assistance Program (ADAP) is changing. Currently, the financial eligibility is at or below 185 percent of the Federal Poverty Level. **Effective September 1, 1999,** all eligibility criteria will remain the same except the upper financial eligibility limit for all medications assistance programs administered by the Missouri Department of Health will be **at or below 300 percent of the Federal Poverty Level**. See Client Eligibility below.

The goal of this increase in financial eligibility criteria is to expand access to expensive antiretroviral combination therapy for persons living with HIV/AIDS.

The benefits of antiretroviral combination therapy include reductions in HIV morbidity and mortality. However, costs for a month of antiretroviral combination therapy range from $900–$1200 or higher, depending on the specific medications utilized. These monthly costs often exceed the financial resources of many persons living with HIV/AIDS. By increasing the financial eligibility criteria, more persons living with HIV/AIDS may receive assistance, if eligible.

The Missouri Statewide AIDS Drug Assistance Program (ADAP) is briefly outlined below:

Purpose:

The purpose of the Missouri Statewide ADAP is to provide medications used in the treatment of eligible persons with HIV or AIDS throughout the state.

Overview:

The Missouri Department of Health implemented the Statewide ADAP in November 1996. ADAP uses a formulary of eligible medications and program criteria that are the same for the whole state.

ADAP uses federal Ryan White Title II funds and state general revenue funds to provide people living with HIV/AIDS with life-sustaining medications.

ADAP works with other existing programs, such as regional Ryan White Title II and Title I in Kansas City and St. Louis, reaching individuals who do not receive assistance for payment of medications from other sources such as Medicaid, private insurance or Medicare. ADAP also helps ensure equal access to AIDS medications throughout the state.

Client Eligibility:

In order to be eligible for ADAP benefits, a person must:

- ✓ Be a Missouri resident;
- ✓ Have a verified HIV-positive diagnosis;
- ✓ Be enrolled in HIV/AIDS case management;
- ✓ Not be eligible to receive HIV medications through any other program, private insurance or other third party payer; and
- ✓ Meet financial eligibility criteria (contact an HIV/AIDS case manager for more information on financial eligibility).

Eligible Medications:

Drugs included in the Statewide ADAP formulary are those recommended by the Missouri HIV/AIDS Medications Advisory Committee, which consists of medical professionals and persons living with HIV/AIDS from across the state.

Access to Medications:

ADAP program funds are sufficient to provide access to medications to only a limited number of persons. The high cost of medications restricts the number of individuals who can receive drugs at any given time. Each eligible person who is interested in accessing medications through ADAP will be required to obtain a prescription from his/her physician and contact his/her HIV/AIDS case manager. Individuals who enroll when ADAP is at full capacity will be put on an access waiting list.

Medical Guidelines:

Highly Active Antiretroviral Therapy (HAART) is now the standard of care for patients receiving therapy for HIV/AIDS. In most cases, this means therapy with a minimum of three antiretroviral drugs.

The Missouri ADAP program has adopted guidelines from the Panel on Clinical Practices for Treatment of HIV Infection, convened by the Department of Health and Human Services (DHHS) and the Henry J. Kaiser Family Foundation, and also from the U.S. Public Health Service and the Infectious Diseases Society of America (USPHS/IDSA), as the recommended standards of care.

The most current medical guidelines, along with other information on HIV treatment, are available on the Internet at **http://www.hivatis.org/**

Adherence:

The Department of Health strongly encourages individuals to speak to a physician or other qualified individual regarding the effects of medications and the importance of adhering to prescribed medication regimens.

For more information on the Statewide ADAP, contact an HIV/AIDS case manager in your area (see map on page 23), or contact the Section of STD/HIV/AIDS Prevention and Care Services, P.O. Box 570, Jefferson City, MO 65102, Ph: (573) 751-6439 or (800) 359-6259.

U.S. Influenza Sentinel Physician Surveillance Network

Mary E. Kliethermes, R.N., B.S.
Section of Communicable Disease Control and Veterinary Public Health

For the third year, the Missouri Department of Health will participate in the Centers for Disease Control and Prevention (CDC) influenza surveillance project called the U.S. Influenza Sentinel Physician Surveillance Network. The program is designed as an active surveillance system to provide CDC with current influenza-like illness information during the influenza season. Last season, 39 states and the District of Columbia collaborated with CDC on this project. The 1999–2000 influenza season begins the week of October 9, 1999, and goes through the week of May 20, 2000.

The success of this program relies on physicians and nurse practitioners working in a collaborative practice to collect influenza-like illness surveillance numbers. CDC defines **influenza-like illness** as fever $\geq$100° Fahrenheit (37.8° C) and cough or sore throat, in the absence of a known cause. Throughout the influenza season, physicians are asked to tally weekly the number of patients, stratified by age group, that they treat with symptoms of influenza-like illness and the total number of patients seen during the same week. Prior to noon on Tuesday of the following week, physicians are asked to call a dedicated phone number using an assigned ID code and enter the week's data by touch-tone code, or they can fax the data in. This year, physicians will also have the option to report data via the Internet, which promises to be more convenient and provides CDC with "real-time" data. Throughout the season, influenza sentinel physicians can review the data through a special password-protected Internet site.

To enhance this program and to provide CDC with additional data, the Missouri State Public Health Laboratory (SPHL) will supply each physician participating in the influenza sentinel physician surveillance network with viral culture kits and instructions on proper collection, storage and shipping methods. During the influenza season, each sentinel physician will be able to ship two viral cultures per week for testing to the SPHL. Results of the viral cultures, as well as select isolates, will be forwarded to CDC throughout the season and will be used to identify the circulating influenza strain. In addition, this information will be used to help determine the components of the vaccine for the next influenza season. The information can also be used to identify viral drifts or shifts and serve as a pandemic warning.

The Department of Health is in the process of developing plans for the 1999–2000 influenza season and would like to improve the sentinel physician surveillance representation in Missouri. The department hopes to recruit many more physicians, especially those practicing in the metropolitan areas, so that the influenza surveillance data more equally represents the areas of Missouri's population centers.

If you are a Missouri physician, or nurse practitioner working in collaboration with a physician, and are interested in participating in or would like more information about the U. S. Influenza Sentinel Physician Surveillance Network, please contact your local public health agency or the Section of Communicable Disease Control and Veterinary Public Health at (573) 751-6113 or (800) 392-0272.

Communicable Disease Control 1998 Annual Report

(continued from page 5)
health district which reported 210 cases, although there was a smaller increase in the number of cases from the Northwestern health district (37 to 71 cases). Statewide, this represents an 81.1 percent increase from the 5-year median of 175 cases.

No cases of *Haemophilus influenza* type B (Hib) meningitis were reported in 1998, continuing the downward trend since the introduction of the vaccine. There were ten cases of Hib other than meningitis, up from last year's count of seven cases. All cases occurred in persons above 40 years of age.

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Partners in Early Breast Cancer Detection: The National Breast Cancer Awareness Month Movement and Missouri's Breast and Cervical Cancer Control Project

Mike Murray
Breast and Cervical Cancer Control Project
Division of Chronic Disease
Prevention and Health Promotion

October 1999 will mark the 15th annual observance of National Breast Cancer Awareness Month (NBCAM). The nationwide educational campaign will again try to raise the American public's awareness of the importance of breast cancer screening and early breast cancer detection. For most of its 15 years, NBCAM has sought to reach women who are "medically underserved"—women who don't receive health information and don't have access to health care. Since 1992, the Missouri Department of Health's Breast and Cervical Cancer Control Project (BCCCP) has piggybacked on the NBCAM effort, sharing its ample spotlight to inform the medically underserved women of Missouri about BCCCP's no-cost mammography program.

If the gradual nature of its increased incidence over several decades were ignored, breast cancer would be described as epidemic. An estimated 175,000 new cases of invasive breast cancer are expected to occur in women during 1999. It is, by far, the most diagnosed cancer in American women. The American Cancer Society makes the statistical claim that one in nine women will develop breast cancer at some point in her life. Over 43,000 Americans, including about 400 males, are expected to die of breast cancer this year.

Breast cancer in Missouri mirrors the national situation in several important ways. The breast is the leading site of new cancer cases in Missouri women, and breast cancer is the second leading cause of cancer deaths in female Missourians. The American Cancer Society estimates that 900 Missouri women will die of breast cancer in 1999. Of special concern to Missourians is the breast cancer mortality rate for African-American women in the state, which has generally exceeded the national rate since 1985.

Despite the identification of numerous risk factors for breast cancer, most of them exist at levels too low to explain the high frequency of the disease in state and national populations. Few of these risks are subject to behavioral or environmental modification. Although new research about BRCA1 and BRCA2 susceptibility genes for breast cancer appears promising, and while recent studies suggest that selective estrogen receptor modulators such as tamoxifen and raloxifene may reduce women's risk of developing breast cancer, early detection of the disease remains the key to mortality reduction.

Mammography can identify breast abnormalities indicative of cancer long before physical symptoms appear. Early detection increases treatment options and enhances survival. Early detection of localized breast cancer tumors leads to five-year survival rates as high as 97 percent, and studies of mammography screening programs have asserted mortality rate declines between 17 and 33 percent. The American Cancer Society, the American College of Surgeons, the American Medical Women's Association, and, most recently, the American Medical Association recommend that all women get mammograms annually starting at age 40. (Due to federal guidelines, however, women generally must be age 50 or older to obtain annual screening mammograms through the Missouri Breast and Cervical Cancer Control Project.)

Early breast cancer detection and universal access to mammography are NBCAM's central themes. Seventeen national service organizations, professional associations, and government agencies will sponsor this October's nationwide media blitz. Radiology facilities across the country will offer mammograms at reduced rates. Health- and cost-conscious employers will educate their female workers on the importance of breast cancer screening.

October is National Breast Cancer Awareness Month

The National Breast Cancer Awareness Month website can be found at **http://www.nbcam.org**.

For information on statewide breast cancer awareness activities in Missouri, contact:

American Cancer Society, Columbia, MO
Ph: (800) 429-7753

Seven Fortune 500 corporations have purchased or leased their own mammography equipment and will provide no- or low-cost mammograms to female employees.

Local groups are planning special screening events, conferences, and fundraisers for October. Mobile mammography screenings, some at no cost to participants, are scheduled for communities in South Carolina, New York, and New Jersey. Medical conferences scheduled in October include the first Lynn Sage Breast Cancer Symposium in Chicago, a Cancer Care–M.D. Anderson event in Houston, and Harvard Medical School's annual breast cancer conference in Boston. Noncompetitive race/walks in Atlanta, Boise, Los Angeles, Santa Monica, and Tucson will raise funds this October for breast cancer research. Throughout the Northeast, church bells will ring or special moments of silence will be observed in memory of breast cancer victims.

Missouri's Breast and Cervical Cancer Control Project (BCCCP) raises its profile during NBCAM. Since 1992, BCCCP has provided no-cost breast and cervical cancer screenings and follow-up diagnostic services for Missouri women who meet age and income guidelines. The project networks 126 service providers statewide, including physicians, clinics, hospitals and local public health agencies. Each year during Breast Cancer Awareness Month, BCCCP supplies promotional materials to its providers and places TV, radio, and print advertisements statewide. Last October, BCCCP's St. Louis Partnership for Breast and Cervical Cancer Awareness helped sponsor an unveiling ceremony for the US Postal Service's new breast cancer research stamp. As it did last year, the Mid-Missouri Partnership for Breast Cancer Awareness, with BCCCP participation, will open NBCAM in 1999 with a candlelight vigil in Columbia to honor local breast cancer victims.

BCCCP shares with the sponsors of NBCAM an emphasis on those women who are medically underserved. These are older women, poor women, often undereducated, and often women of color. Frequently they live in neighborhoods, both rural and urban, where medical services are not readily available. NBCAM sponsors have launched multicultural and, where necessary, bilingual initiatives to reach these women where they live. BCCCP media campaigns seek to reach the same groups in Missouri. Of the 48,000+ women BCCCP has served in its seven-year existence, 29 percent were age 50 or older, 33 percent did not finish high school, 24 percent were African-American, and 2 percent were of Hispanic descent. BCCCP providers have diagnosed 237 cases of breast cancer in these underserved populations.

Further information about the Breast and Cervical Cancer Control Project is available to callers at (573) 876-3273. Informaton on breast cancer is also available through the Department of Health Home Page at **http://www.health.state.mo.us/GLRequest/BreastCancer/BC.html**.

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(continued from page 18)

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Guideline for Prevention of Surgical Site Infection, 1999

The recently released *Guideline for Prevention of Surgical Site Infection*, 1999 presents evidence-based recommendations for surgical site infection (SSI) prevention; provides an extensive review of the epidemiology, definitions, microbiology, pathogenesis, and surveillance of SSI; and provides a detailed discussion of the pre-, intra-, and post-operative issues relevant to SSI genesis.

The guideline and information about continuing education credit are available at **http://www.cdc.gov/ncidod/hip/**

HIV/AIDS in Missouri: 1998

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***NOTE:** HIV-infected persons who have been reported to the Missouri Department of Health (MDOH) are placed into one of two mutually exclusive categories: HIV cases and AIDS Cases. Together, these two groups of cases are referred to as HIV disease. An **AIDS case** is an individual in the later stages of HIV disease who meets the Centers for Disease Control and Prevention (CDC) surveillance case definition for AIDS. An **HIV case** is an individual in the earlier stages of HIV disease who has never met the CDC AIDS case definition. If an HIV case progresses in their disease process and meets the AIDS case definition, then he or she is reclassified as an AIDS case. HIV cases, in general, represent persons more recently infected with HIV; AIDS cases, in general, represent persons less recently infected (the average incubation for AIDS in the absence of effective antiretroviral treatment is approximately 8–10 years).*

From 1982 through 1998, a total of 7,894 AIDS cases have been reported in Missouri residents.* In 1998, 466 AIDS cases were reported; the corresponding rate** was 8.6 cases per 100,000 population (the U.S. AIDS rate for cases reported during 1998 was 17.1).

Of 7,894 AIDS cases reported through the end of 1998, 4,398 (55.7%) were known to have died, and 3,496 (44.3%) were living with AIDS. During 1998, 145 AIDS-related deaths in Missouri residents were reported on death certificates.

An additional 3,983 HIV cases have been reported in Missourians***; 486 HIV cases were reported in 1998. In sum, from 1982 through 1998, 11,877 Missourians with HIV disease (7,894 AIDS cases and 3,983 HIV cases) have been reported to MDOH.

Table 1 describes HIV and AIDS cases by gender, race/ethnicity, age at diagnosis, and exposure category, as well as geographic location.

Males continue to make up the majority of reported HIV and AIDS cases (78.0 percent of the 486 HIV cases and 84.5 percent of the 466 AIDS cases reported in 1998).

African Americans continue to be very disproportionately represented in the HIV/AIDS epidemic. Although African Americans make up only about 11 percent of Missouri's population, they accounted for 44.4 percent of HIV cases and 42.3 percent of AIDS cases reported in 1998. The rate for HIV cases reported in 1998 in African Americans (35.9) was 6.6 times the rate in whites (5.4). For Hispanics, the rates for HIV and AIDS cases reported in 1998 were approximately twice those seen in whites. However, the numbers of cases reported in Hispanics (9 HIV cases and 9 AIDS cases in 1998) have been small. Asians and American Indians each make up less than 0.5 percent of the total reported HIV and AIDS cases. In 1998, two HIV cases were reported in Asians; none were reported in American Indians. No AIDS cases were reported in persons from either of these groups in 1998.

Many new HIV infections in Missourians are occurring in persons in their twenties, and infections are also occurring in teenagers. Of HIV cases reported in 1998, 43.6 percent were diagnosed in 30–39 year olds (some of these individuals were initially infected in their twenties) and 29.8 percent in 20–29 year olds (some of these individuals were infected in their teens).

Among reported HIV cases, which generally represent persons more recently infected with HIV, the majority acquired their infection through male homosexual contact; the second largest number acquired their infection through heterosexual contact. Of the 480 adult/adolescent HIV cases reported in 1998: 275 (57.3%) were in men who have sex with men (MSM); 23 (4.8%) in men who have sex with men and inject drugs (MSM/IDUs); 25 (5.2%) in injecting drug users (IDUs); 79 (16.5%) in heterosexual contacts; and 75 (15.6%) are still being investigated and have not yet been placed in a specific exposure category.†

A total of 33 perinatal HIV cases and 42 perinatal AIDS cases have been reported with 6 perinatal HIV cases and 2 perinatal AIDS cases reported in 1998. (Perinatal cases are the result of HIV transmission from an infected mother to her infant before or at the time of birth.)

Table 2 provides information on 1998 HIV cases and rates by race/ethnicity and geographic area. In each area (St. Louis City and County, Kansas City, and Outstate Missouri), the HIV case rate in African Americans is noticeably higher than in whites.

Table 3 on page 30 summarizes reported HIV and AIDS cases and rates by geographic area. The highest rates of HIV and AIDS cases are in St. Louis City, followed by Kansas City, St. Louis County, and Outstate Missouri. Of the 486 HIV cases reported in Missouri residents in 1998:

- 123 (25.3%) were from St. Louis City; the rate was 36.0 cases per 100,000 population
- 70 (14.4%) were from St. Louis County; the rate was 7.0
- 120 (24.7%) were from Kansas City; the rate was 26.8
- 130 (26.7%) were from Outstate Missouri; the rate was 3.6

(continued on page 30)

* Does not include 273 AIDS cases diagnosed in persons residing in Federal correctional facilities in Missouri.
** All rates are per 100,000 population, using 1997 population estimates.
*** Does not include 100 HIV cases diagnosed in persons residing in Federal correctional facilities in Missouri.
† When this is done, most will be assigned to one of the four major exposure categories: MSM, MSM/IDU, IDU, or heterosexual contact.

Table 1. Summary of Reported HIV and AIDS Cases, Missouri, 1982–1998

	HIV Cases*				AIDS Cases**				HIV/AIDS Cases	
	Reported 1998		Cumulative*		Reported 1998		Cumulative		Cumulative	
	Case	%	Case	%	Case	%	Case	%	Case	%
Geographic Location										
Missouri	486	100.0%)	3,983	(100.0%)	466	(100.0%)	7,894	(100.0%)	11,877	(100.0%)
St. Louis City†	123	(25.3%)	1,179	(29.6%)	146	(31.3%)	2,169	(27.5%)	3,348	(28.2%)
St. Louis County†	70	(14.4%)	511	(12.8%)	68	(14.6%)	1,218	(15.4%)	1,729	(14.6%)
Kansas City†	120	(24.7%)	1,029	(25.8%)	112	(24.0%)	2,261	(28.6%)	3,290	(27.7%
Outstate†	130	(26.7%)	993	(24.9%)	121	(26.0%)	2,056	(26.0%)	3,049	(25.7%)
Missouri Correctional Facilities††	43	(8.8%)	271	(6.8%)	19	(4.1%)	190	(2.4%)	461	(3.9%)
Gender										
Male	379	(78.0 %)	3,349	(84.1%)	394	(84.5%)	7,221	(91.5%)	10,570	(89.0%)
Female	107	(22.0%)	634	(15.9%)	72	(15.5%)	673	(8.5%)	1,307	(11.0%)
Race/Ethnicity										
White	253	(52.1%)	2,143	(53.8%)	259	(55.6%)	5,346	(67.7%)	7,489	(63.1%)
Black	216	(44.4%)	1,702	(42.7%)	197	(42.3%)	2,347	(29.7%)	4,049	(34.1%)
Hispanic	9	(1.9%)	87	(2.2%)	9	(1.9%)	152	(1.9%)	239	(2.0%)
Asian/Pacific Islander	2	(0.4%)	13	(0.3%)	0	(0.0%)	17	(0.2%)	30	(0.3%)
American Indian	0	(0.0%)	11	(0.3%)	0	(0.0%)	30	(0.4%)	41	(0.3%)
Unknown	6	(1.2%)	27	(0.7%)	1	(0.2%)	2	(0.1%)	29	(0.2%)
Age at Diagnosis‡										
<13	6	(1.2%)	40	(1.0%)	2	(0.4%)	53	(0.7%)		
13-19	20	(4.1%)	187	(4.7%)	6	(1.3%)	77	(1.0%)		
20-29	145	(29.8%)	1,589	(39.9%)	84	(18.0%)	1,832	(23.2%)		
30-39	212	(43.6%)	1,518	(38.1%)	217	(46.6%)	3,615	(45.8%)		
40-49	82	(16.9%)	505	(12.7%)	111	(23.8%)	1,652	(20.9%)		
>49	21	(4.3%)	144	(3.6%)	46	(9.9%)	665	(8.4%)		
Exposure Category¶										
MSM	275	(56.6%)	2,431	(61.0%)	290	(62.2%)	5,659	(71.7%)	8,090	(68.1%)
MSM/IDU	23	(4.7%)	260	(6.5%)	32	(6.9%)	712	(9.0%)	972	(8.2%)
IDU	25	(5.1%)	389	(9.8%)	40	(8.6%)	560	(7.1%)	949	(8.0%)
Heterosexual Contact	79	(16.3%)	554	(13.9%)	53	(11.4%)	550	(7.0%)	1,104	(9.3%)
Adult Hemophiliac	3	(0.6%)	30	(0.7%)	0	(0.0%)	142	(1.8%)	172	(1.4%)
Adult Transfusion	0	(0.0%)	14	(0.4%)	2	(0.4%)	94	(1.2%)	108	(0.9%)
Other/Unknown Adult	75	(15.4%)	265	(6.7%)	47	(10.1%)	115	(1.5%)	380	(3.2%)
Perinatal Transmission	6	(1.2%)	33	(0.8%)	2	(0.4%)	42	(0.5%)	75	(0.6%)
Other/Unknown Pediatric	0	(0.0%)	7	(0.2%)	0	(0.0%)	20	(0.3%)	27	(0.2%)
Missouri Total	**486**	**(100.0%)**	**3,983**	**(100.0%)**	**466**	**(100.0%)**	**7,894**	**(100.0%)**	**11,877**	**(100.0%)**

*HIV Cases-Persons with HIV infection who have not developed one of the specific diseases or conditions which would cause them to meet the case definition for AIDS.

**AIDS Cases-Persons with HIV infection who have developed one or more of the specific diseases or conditions which cause them to meet the AIDS case definition.

†Does not include persons living in correctional facilities at the time of diagnosis.

††Includes state, county and local correctional facilities.

‡For HIV Cases, Age at Diagnosis is the age at which the individual was first diagnosed with HIV infection. For AIDS Cases, Age at Diagnosis is the age at which the individual was first diagnosed with AIDS.

¶ MSM=men who have sex with men; MSM/IDU=men who have sex with men and inject drugs; IDU=injecting drug users

Table 2. Reported HIV Cases and Rates by Race/Ethnicity and Geographic Area, Missouri, 1998

	TOTAL		WHITE, NON-HISPANIC		BLACK, NON-HISPANIC		HISPANIC	
	CASES	RATE*	CASES	RATE*	CASES	RATE*	CASES	RATE*
ST LOUIS CITY	12	36.	46	29.	77	43.	0	0.0
ST LOUIS CO	70	7.0	40	5.0	29	17.	1	7.9
KANSAS CITY	12	26.	60	21.	54	41.	5	26.
OUTSTATE TOTAL	13	3.6	96	2.8	24	18.	3	6.6
MO CORRECTIONAL FACILITIES**	43	----	11	----	32	----	0	----
MISSOURI	**48**	**9.0**	**25**	**5.4**	**21**	**35.**	**9**	**11.**

*Per 100,000 population, based on 1997 population estimates.

**Includes state, county, and local correctional facilities.

Table 3. Summary of Reported HIV and AIDS Cases, Missouri, 1982–1998

Geographic Area	HIV Cases* Reported 1998 Case	%	Rate***	HIV Cases* Cumulative Case	%	AIDS Cases** Reported 1998 Case	%	Rate***	AIDS Cases** Cumulative Case	%
Location										
St. Louis City†	123	(25.3%)	36.0	1,179	(29.6%)	146	(31.3%)	42.7	2,169	(27.5%)
St. Louis County†	70	(14.4%)	7.0	511	(12.8%)	68	(14.6%)	6.8	1,218	(15.4%)
Kansas City†	120	(24.7%)	26.8	1,029	(25.8%)	112	(24.0%)	25.0	2,261	(28.6%)
Outstate†	130	(26.7%)	3.6	993	(24.9%)	121	(26.0%)	3.4	2,056	(26.0%)
Missouri Correctional Facilities††	43	(8.8%)	--	271	(6.8%)	19	(4.1%)	--	190	(2.4%)
Community Planning Regions										
St. Louis†	200	(41.2%)	12.4	1,751	(44.0%)	219	(47.0%)	13.6	3,520	(44.6%)
Kansas City†	138	(28.4%)	13.5	1,208	(30.3%)	136	(29.2%)	13.3	2,711	(34.3%)
Northwest†	6	(1.2%)	2.4	61	(1.5%)	2	(0.4%)	0.8	137	(1.7%)
Northeast†	2	(0.4%)	0.8	28	(0.7%)	5	(1.1%)	2.0	68	(0.9%)
Central†	28	(5.8%)	2.9	232	(5.8%)	39	(8.4%)	4.0	491	(6.2%)
Southwest†	43	(8.8%)	5.7	291	(7.3%)	34	(7.3%)	4.5	538	(6.8%)
Southeast†	26	(5.3%)	4.8	141	(3.5%)	12	(2.6%)	2.2	239	(3.0%)
Missouri Correctional Facilities††	43	(8.8%)	---	271	(6.8%)	19	(4.1%)	---	190	(2.4%)
Missouri Total	**486**	**(100.0%)**	**9.0**	**3,983**	**(100.0%)**	**466**	**(100.0%)**	**8.6**	**7,894**	**(100.0%)**

*HIV Cases-Persons with HIV infection who have not developed one of the specific diseases or conditions which would cause them to meet the case definition for AIDS.
**AIDS Cases-Persons with HIV infection who have developed one or more of the specific diseases or conditions which cause them to meet the AIDS case definition.
***Per 100,000 population, based on 1997 population estimates.
†Does not include persons living in correctional facilities at the time of diagnosis.
††Includes state, county and local correctional facilities.

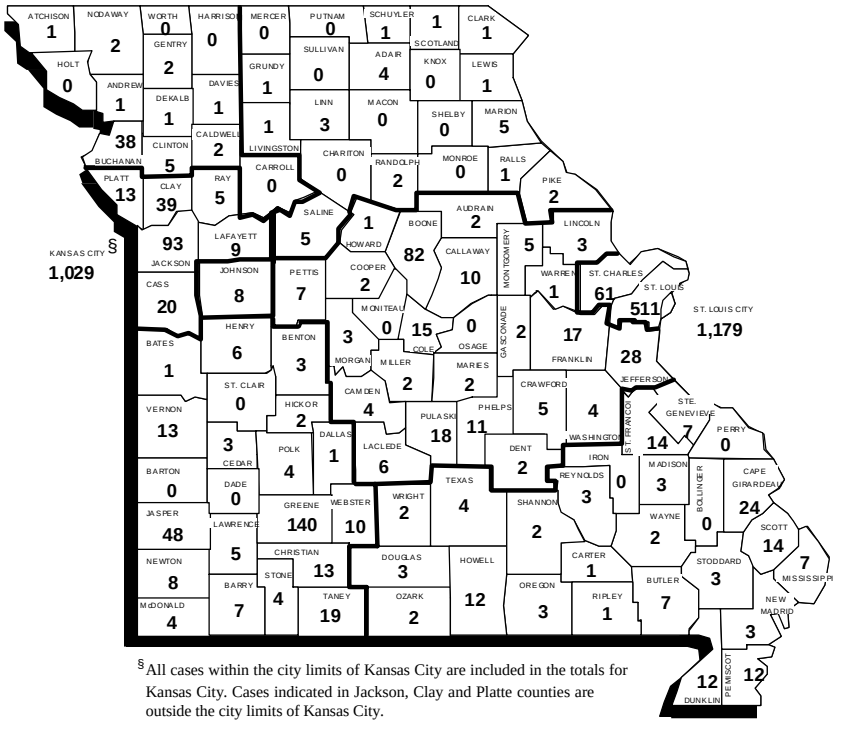
(continued from page 28)

- 43 (8.8%) were in persons living in Missouri correctional facilities at the time of diagnosis

Of the 466 AIDS cases reported in Missouri residents in 1998:

- 146 (31.3%) were from St. Louis City; the rate was 42.7 cases per 100,000 population
- 68 (14.6%) were from St. Louis County; the rate was 6.8
- 112 (24.0%) were from Kansas City; the rate was 25.0
- 121 (26.0%) were from Outstate Missouri; the rate was 3.4
- 19 (4.1%) were in persons living in Missouri correctional facilities at the time of diagnosis

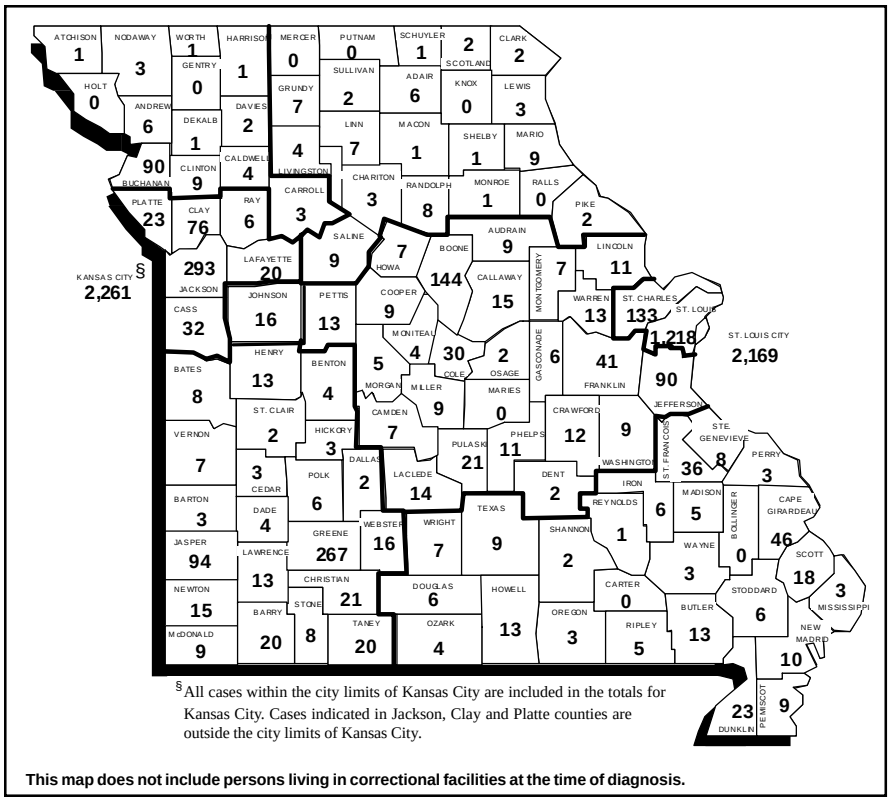
Figures 1 and 2 show cumulative HIV and AIDS cases by county. At least one HIV case has been reported from 94 (82.5%) of Missouri's 114 counties. At



§All cases within the city limits of Kansas City are included in the totals for Kansas City. Cases indicated in Jackson, Clay and Platte counties are outside the city limits of Kansas City.

This map does not include persons living in correctional facilities at the time of diagnosis.

Figure 1. Reported HIV cases by county, Missouri, cumulative through 1998.



§ All cases within the city limits of Kansas City are included in the totals for Kansas City. Cases indicated in Jackson, Clay and Platte counties are outside the city limits of Kansas City.

This map does not include persons living in correctional facilities at the time of diagnosis.

Figure 2. Reported AIDS cases by county, Missouri, cumulative through 1998.

least one AIDS case has been reported from 105 (92.1%) of the state's 114 counties. Only five (4.4%) Missouri counties have not reported any HIV or AIDS cases.

The following describe apparent trends in the HIV/AIDS epidemic in Missouri. Such trends may provide indications of the future course of the epidemic, as well as indications of which groups are increasingly becoming affected.

- The 466 AIDS cases reported in Missouri residents in 1998 represented a 2.7 percent decrease from the 479 cases reported in 1997. See Figure 3. This decrease is much smaller than the 41.2 percent decrease in reported AIDS cases from 1996 to 1997. The large decline in reported cases from 1996 to 1997 was believed to be largely due to improvements in the care and treatment of HIV-infected persons, especially the use of combination antiretroviral therapy. Failure of antiretroviral therapy does, however, occur, and the much smaller decline in the number of AIDS cases reported in 1998 may in part reflect the occurrence of such treatment failure in a number of persons.
- The 145 AIDS-related deaths in Missouri residents reported on death certificates during 1998 represented an 11.0 percent decrease from the 163 deaths reported in 1997. This decrease is much smaller than the 51.9 percent decrease in AIDS-related deaths from 1996 to 1997. The explanation for this smaller decline in such deaths in 1998 may also in part reflect the occurrence of treatment failures.
- Despite the occurrence of treatment failures, combination antiretroviral therapy has been successful in many persons, resulting in marked reductions in morbidity and mortality. This appears to be reflected in the 8.1 percent increase in the number of persons living with AIDS (AIDS prevalence) at the end of 1998 (3,496)

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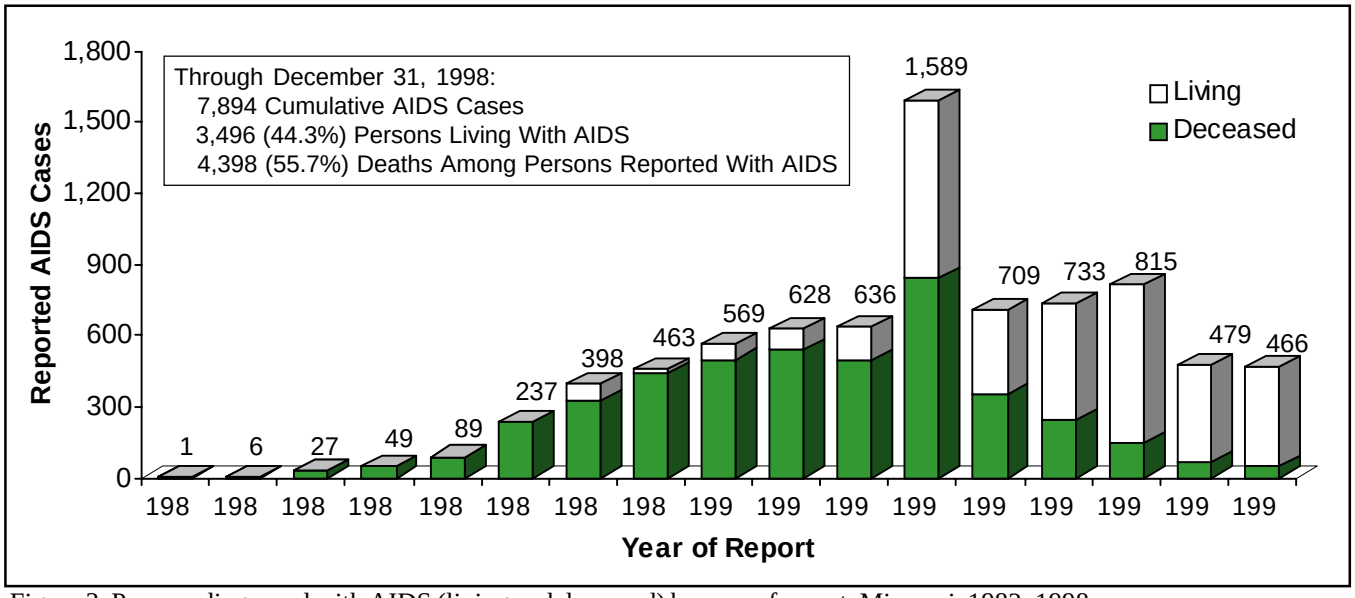

Figure 3. Persons diagnosed with AIDS (living and deceased) by year of report, Missouri, 1982–1998.

(continued from page 31)

compared to the number living with AIDS at the end of 1997 (3,235).

- Although men continue to make up the largest numbers of reported cases, women are being increasingly affected by the HIV/AIDS epidemic.
  - –Since the mid-1980's, women have generally been making up a larger proportion of annually reported AIDS cases. Of AIDS cases reported in 1998, 15.5 percent were in females. By comparison, of AIDS cases reported five years previously (in 1993), only 8.3 percent were in females.
  - –A higher proportion of HIV cases, compared to AIDS cases, tend to be female, providing evidence that among more recently infected persons a larger proportion are female. In 1998, 15.5 percent of reported AIDS cases were female; by comparison, 22.0 percent of reported HIV cases were female (see Table 1 on page 29).
  - –When, as shown in Figure 4, reported HIV cases[¶] are examined by gender and year of diagnosis,[¶¶] it can be seen that the annual number of diagnosed cases in females has generally been slowly increasing in recent years, whereas diagnosed cases in males have been decreasing (See also the discussion below on the use of trend data for reported HIV cases). Not shown in this figure is the fact that the upward trend in females is most evident among African American females.
- Although it seems highly likely that the largest number of new HIV infections continue to result from male homosexual contact, it also appears that increasing numbers of persons are being infected through heterosexual contact.

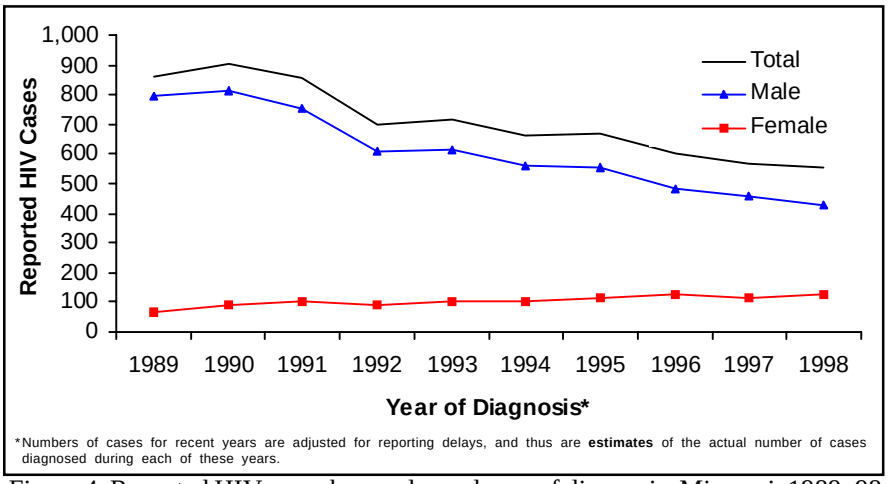

Figure 4. Reported HIV cases by gender and year of diagnosis, Missouri, 1989–98.

  - –Heterosexual contacts have, since the mid-1980's, generally been making up a larger proportion of annually reported AIDS cases. For AIDS cases reported in 1998, it is estimated that eventually almost 14 percent will be placed in the heterosexual contact exposure category (once those whose risk status is currently unknown are reassigned, after further investigation, to a specific exposure category). Five years previously (in 1993), heterosexual contacts made up only approximately 6.5 percent of reported AIDS cases).
  - –A higher proportion of HIV cases, compared to AIDS cases, tend to be heterosexual contacts, providing evidence that among more recently infected persons a larger proportion have acquired their infection through heterosexual contact. In 1998, 11.4 percent of reported AIDS cases whose risk category is known at this time were in heterosexual contacts, compared to 16.3 percent of reported HIV cases (see Table 1 on page 29).
  - –When reported HIV cases are examined by exposure category and year of diagnosis, it can be seen that the annual number of diagnosed cases in heterosexual contacts has generally been increasing in recent years (Figure 5; see also the discussion in the next section on the use of trend data for reported HIV cases). Not shown in this figure is the fact that the upward trend in heterosexual contact cases is most evident among African American females.
- A potentially useful way to examine the current direction of the HIV disease epidemic is to look at trends in reported HIV cases by year of diagnosis. This approach can be particularly helpful because HIV cases are persons diagnosed with HIV infection who have not progressed to AIDS, and so are generally closer to the time of initial infection than are persons with AIDS. Examining changes in reported HIV cases over time thus has the potential to provide a general estimate of current trends in new HIV infections in the population(s) being considered.[††]
  - –Figure 4 shows reported HIV cases by gender and year of diagnosis. For total HIV cases and male HIV cases, the annual numbers of diagnosed

[¶] The HIV cases shown in Figures 4–8 represent individuals who were HIV cases (i.e., HIV infected but **not** AIDS) **at the time of initial diagnosis of HIV infection**. Some of these individuals have subsequently progressed to AIDS, while the rest currently remain HIV cases. However, in these figures, where the emphasis is on status at the time of initial diagnosis, all are considered HIV cases. (This is in contrast to the data in Table 1. In this table, once an individual who is an HIV case meets the case definition for AIDS, he or she is no longer counted as an HIV case, and instead is counted as an AIDS case.)

[¶¶] Adjustments were made for delays in reporting of cases. That is, for more recent years, not all cases diagnosed during these years have been reported as yet. To adjust for this, estimates were made, based on past experience, of the additional number of cases expected to ultimately be reported, and these expected cases were added to those already reported to give the estimated total number of cases for a given year as shown in the figure.

[††] This approach does have potential limitations. For many reported HIV cases, initial diagnosis of infection did not occur until several years after initial infection, so at best the trends in reported HIV cases can only approximate current trends in new HIV infections. In addition, to be diagnosed as an HIV case, the individual must first have been tested for HIV. Because members of certain subpopulations may be more, or less, likely to be tested, different subpopulations could be over- or under-represented among reported HIV cases. Also, if changes in testing behavior among at-risk persons have occurred over time, this could lead to an increase, or decrease, in the numbers of cases diagnosed and reported.

cases have been decreasing, although the rate of decrease has slowed in recent years. In females, the annual number of diagnosed cases has generally been slowly increasing in recent years.

– Figure 5 shows reported HIV cases by race/ethnicity and year of diagnosis. For whites, the annual number of diagnosed cases has been generally decreasing, although the rate of decrease has slowed in recent years. For African Americans, the annual number of diagnosed cases has, since 1991, shown an overall decrease, although this decrease has been smaller and less consistent than that seen in whites.

– Figure 6 shows reported HIV cases by year of diagnosis for white males and females, and African American males and females. For white and African American males, the annual numbers of diagnosed cases have been generally decreasing. For white females, the annual number of diagnosed cases has remained generally stable. For African American females, the annual number of diagnosed cases increased slowly from 1992 through 1996, and then essentially plateaued the past two years.

– Figure 7 shows reported HIV cases by selected exposure categories and year of diagnosis. For HIV cases reported in MSMs, MSM/IDUs, and IDUs, the annual numbers of diagnosed cases have been generally decreasing. The annual number of diagnosed cases in heterosexual contacts has generally been increasing.

– Figure 8 on page 34 shows reported HIV cases by community planning group (CPG) region and year of diagnosis. The annual number of diagnosed cases from the St. Louis Planning Region has generally been decreasing. Reported cases from the Kansas City Planning Region have generally plateaued in recent years. The annual numbers of diagnosed cases from the other planning regions

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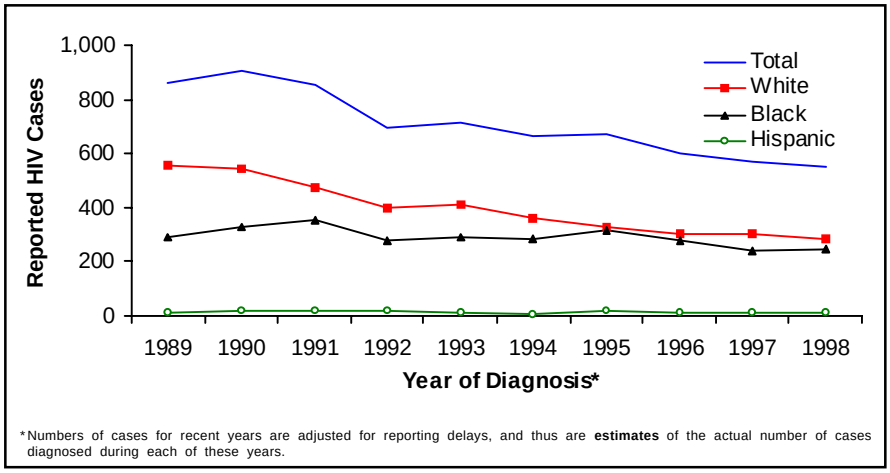
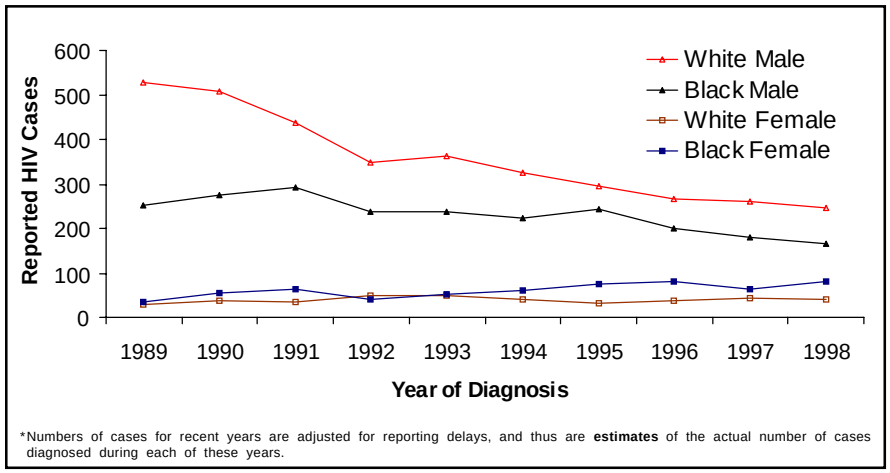


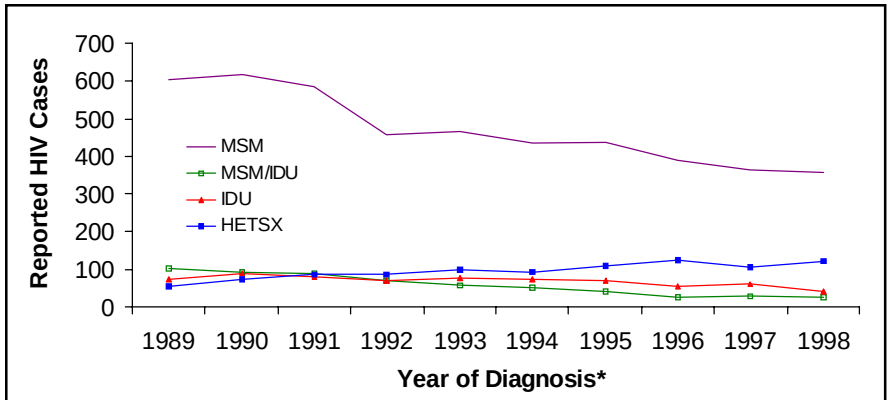
*Numbers of cases for recent years are adjusted for reporting delays, and thus are **estimates** of the actual number of cases diagnosed during each of these years.

Figure 5. Reported HIV cases by race/ethnicity and year of diagnosis, Missouri, 1989–98.



*Numbers of cases for recent years are adjusted for reporting delays, and thus are **estimates** of the actual number of cases diagnosed during each of these years.

Figure 6. Reported HIV cases by race/ethnicity, gender and year of diagnosis, Missouri, 1989–98.



* Numbers of cases for recent years are adjusted for reporting delays, and thus are **estimates** of the actual number of cases diagnosed during each of these years.

Cases currently classified as "Other/Unknown Adult," many of which are still under investigation, have been assigned to a specific exposure category in order to more clearly depict trends in reported HIV/AIDS cases. The proportion of Other/Unknown Adult cases assigned to a given exposure category is based on past experience with Other/Unknown Adult cases whose exposure risk has been determined following investigation. Such experience indicates that almost all Other/Unknown Adult cases whose expsosure risk is eventually determined will be placed in one of four exposure categories: men who have sex with men, men who have sex with men and inject drugs, injecting drug use, or heterosexual contact.

Figure 7. Reported HIV cases by selected exposure categories and year of diagnosis, Missouri, 1989–98.

(continued from page 33)

have been smaller, and have not shown noticeable upward or downward trends in recent years.

The overall trend in reported HIV cases has been downward. This could be due, at least in part, to a decrease in the number of new HIV infections (HIV incidence) in recent years. It could also potentially reflect other factors, such as possible changes in testing behaviors among at-risk populations. Of concern is the fact that, for certain subpopulations (African-American females and heterosexual contacts), the annual number of diagnosed HIV cases has generally been increasing.

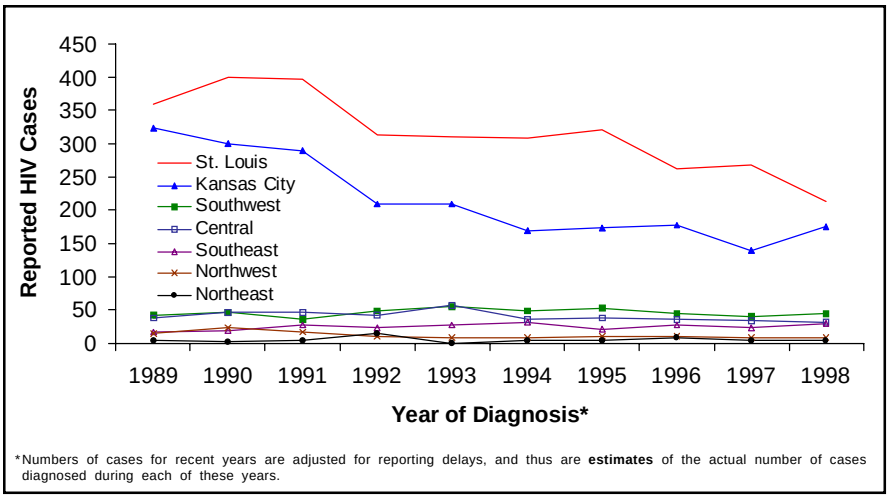


Figure 8. Reported HIV cases by community planning region and year of diagnosis, Missouri, 1989–98.

Comment:

From 1982 through 1998, 11,877 HIV-infected Missourians (7,894 AIDS cases and 3,983 HIV cases) have been reported to MDOH. Males and whites continue to make up the largest numbers of reported cases. However, females are becoming increasingly affected by the epidemic, and African Americans continue to be very disproportionately represented among reported HIV and AIDS cases. While the majority of reported HIV and AIDS cases continue to be in men who acquired their infection through male homosexual contact, the number of heterosexual contact cases has been increasing.

The largest numbers of HIV and AIDS cases, and the highest case rates, are in the state's two major metropolitan areas. However, HIV infection is also occurring in persons living in rural areas, and HIV and AIDS cases have been reported from most counties in the state.

Numbers of reported AIDS cases showed a substantial decline from 1996 to 1997; however, only a very small decrease was seen in reported cases from 1997 to 1998. Similarly, while the number of AIDS-related deaths dropped markedly from 1996 to 1997, the decline from 1997 to 1998 was much smaller. On the other hand, the number of persons living with AIDS increased from 1997 to 1998. Taken together these trends appear to reflect, at least in part, the successes and failures of the newer therapies for HIV disease.

An accurate understanding of trends in HIV incidence has been difficult to obtain. One approach to this problem is to examine HIV cases (which represent persons more recently infected) by year of diagnosis. When this is done for HIV cases reported in Missouri, it is apparent that the overall trend has been generally downward in recent years. This may, as stated above, be at least partially due to an actual decrease in the number of new HIV infections in recent years. It may also, however, be due at least in part to other factors, such as possible changes in testing behaviors among persons at-risk for HIV infection. But regardless of the cause or causes for the overall downward trend, the fact that the annual numbers of diagnosed HIV cases in females (particularly African American females) and heterosexual contacts have been increasing is an apparent indication of a growing problem in these subpopulations.

The HIV/AIDS epidemic continues to be a very significant problem in Missouri. Even if the overall number of new HIV infections is decreasing, and there is not yet sufficient information to allow this conclusion to be stated with certainty, there continue to be significant numbers of persons becoming infected. In addition, it appears that at least for some subpopulations, the number of new infections is actually increasing.

The presently available antiretroviral therapies have provided very substantial benefit to many infected persons by slowing the progression from the earlier stages of HIV disease to AIDS, and from AIDS to death. However, these therapies are not a cure, and are associated with many problems such as adherence, adverse reactions, development of resistance, treatment failure, and cost. *Emphasis must continue to be placed on prevention of new infections.*

- Medical providers should routinely conduct appropriate risk assessments on their patients, provide counseling and any necessary referrals for those who are at risk for HIV infection, and strongly encourage all at-risk persons to be tested for HIV.
- All pregnant women should receive counseling/education regarding HIV infection and be encouraged to undergo voluntary HIV testing.[1,2,3] Those found to be infected should be offered treatment according to current guidelines.[4] Such treatment should be provided by, or in consultation with, a physician who has expertise in the treatment of HIV-infected pregnant women.
- All medical facilities, including clinics and physicians' offices, should have written protocols for managing occupational exposures to HIV (and

other bloodborne pathogens). These protocols should be periodically updated to remain consistent with current guidelines.[5,6,7]

- Medical providers should be aware of management options, and current recommendations,[8] for situations in which individuals have non-occupational (sexual or injecting-drug–use) exposure to HIV.
- Medical providers should promptly report, as required by Missouri law, all cases of HIV infection/AIDS to public health officials. Providers in St. Louis City and St. Louis County should report cases to the St. Louis City Department of Health and Hospitals at (314) 658-1159. Providers in the five-county Kansas City metropolitan area should report to the Kansas City Health Department at (816) 983-4200. All other providers should report to MDOH's Office of Surveillance at (573) 751-6463.
- Medical providers should also be aware of current guidelines[9] for the screening, diagnosis, and treatment of sexually transmitted diseases (STDs) such as chlamydia, gonorrhea, syphilis, and trichomoniasis. The presence of these conditions is known to increase HIV infectivity and HIV susceptibility, and the early detection and treatment of curable STDs should be a major component of HIV prevention programs.[10]
- Ongoing efforts are needed to help at-risk persons modify those behaviors which can result in the transmission of HIV. Families, schools, churches, health care providers, and community-based organizations, as well as public health agencies, all need to be involved in this task.
- Finally, prevention activities should be based on a thorough understanding of:
  1) the epidemiology of the HIV/AIDS epidemic in one's geographic area[11], and
  2) which prevention efforts are likely to have success in the population(s) being targeted. (More information on HIV prevention can be obtained by contacting the Section of STD/HIV/AIDS Prevention and Care Services at (573) 751-6144.

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HIV/AIDS educational opportunities for medical professionals are available through Midwest AIDS Training and Education Center (MATEC) sites in St. Louis and Kansas City. For more information, contact:

MATEC—Eastern Missouri at (314) 362-2418 or (800) 432-0448
FAX (314) 362-4857
http://www.id.wustl.edu/~actu

MATEC—Western Missouri at (816) 756-5116, FAX (816) 756-5121
http://www.kcarc.org/education.htm

A number of links to HIV/AIDS-related sites on the World Wide Web are available on the Missouri Department of Health Home Page at: **http://www.health.state.mo.us/GLRequest/ID/LinksHIVAIDS.html**.

1998 Outbreaks of Communicable Disease*

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Unraveling the source of an outbreak requires collaborative interaction between personnel in various roles and work settings. Depending upon the complexity of an outbreak, interaction may involve federal, state, local and facility-based personnel. These persons function as a team and each plays an integral part in resolving an outbreak or cluster. The Section of Communicable Disease Control and Veterinary Public Health is grateful for the assistance of persons statewide who contribute time, concerted effort and expertise helping to protect Missouri citizens from infectious diseases.

In 1998, 36 communicable disease outbreaks occurring within communities were reported in Missouri. These 36 outbreaks involved 2,514 people and represent an increase of 16 percent from the 31 outbreaks reported in 1997. These outbreaks involved different modes of transmission and widely varying etiologic agents in a number of different settings. See Table 1.

Schools were the most common setting for outbreaks in 1998, accounting for nine (25%) of the 36 reported outbreaks. The largest of the outbreaks involved influenza A in one school district affecting 1,000 students. Interestingly, the 25 percent absenteeism rate, needed for school closure, was not met and within four days attendance rates returned to normal.

The largest category of outbreaks reported during 1998 was acute gastrointestinal illness (AGI) of unknown etiology (14 outbreaks affecting 416 people). Foodborne transmission was responsible for 12 (86%) of the 14 outbreaks occurring in varied settings.

Table 1. Community disease outbreaks by cause, setting and number of cases, Missouri, 1998.

Disease/ Mode of Transmission	No. of Outbreaks	Setting	No. of Cases
Acute Gastrointestinal Illness of Unknown Etiology/			
Foodborne	12	2C, CP, 2FG, H, O, OT, 2R, 2S	338
Person-to-Person	2	O,S	78
Campylobacter/Waterborne	1	G	20
Fifth Disease/Person-to-Person	3	2CC, S	25
Influenza A (culture confirmed)/			
Person-to-Person	4	G, I, 2S	1,406
Influenza-Like Illness/			
Person-to-Person	2	H,I	290
Leptospirosis/			
Waterborne	1	O	2
Other	1	S	19
Meningitis, Aseptic (Viral)/			
Person-to-Person	1	G	219
Pseudomonas/Waterborne	1	H	10
Salmonellosis/Foodborne	2	2G	66
Scabies/Person-to-Person	1	S	3
Shigellosis/			
Foodborne	1	O	25
Person-to-Person	2	CC, FG	9
Staphylococcus aureus/Waterborne	1	G	4
Strep Grp A (sore throats)/			
Person-to-Person	1	S	Unknown
TOTAL	**36**		**2,514**

Key:

C =Catered Event	**I** =Institution
CC =Child Care	**O** =Occupational
CP =Camp	**OT** =Other
FG =Family Gathering	**P** =Prison or Other Correctional Facility
G =General Community	**R** =Restaurant
H =Hotel	**S** =School

Salmonella species caused two of the foodborne outbreaks that affected a total of 66 people in Missouri. One outbreak, involving 34 people, was caused by *S. agona* linked to one brand of plain toasted oats cereal which caused over 200 cases of illness in at least 11 states. The second outbreak caused by *S. poona*

* Does not include outbreaks related to sexually transmitted diseases, tuberculosis, vaccine-preventable diseases or zoonotic diseases.

affected 32 people. Initially, the relationship between cases was not recognized because cases spanned multiple counties and even the state line. Sophisticated testing with Pulsed Field Gel Electrophoresis (PFGE), newly obtained and used by the State Public Health Laboratory, determined that all isolates were genetically identical and epidemiological study was needed. A food source was suspected, but due to the length of time between onset of illness and date of interviews, a common food source was never identified.

Shigellosis was diagnosed in three outbreaks affecting 34 people. One outbreak caused by *Sh. sonnei*, suspected to have been transmitted via food, affected 25 persons and occurred in a congregate living facility. Sanitary conditions at the facility were found satisfactory with no illness among foodhandlers noted. Interim control measures (strict compliance with handwashing, separating the ill from the non-ill, sanitizing equipment and shared items) were effective in halting the outbreak.

Three waterborne outbreaks occurred in 1998. One outbreak resulted when 10 of 11 attendees at a birthday party used the hotel hot tub. Within 48 hours all ten developed a rash clinically diagnosed as *Pseudomonas* folliculitis. The hot tub was drained before a water sample could be obtained for culture. One outbreak involved a fast food establishment where an ice maker and ice storage bin were found contaminated with *Staphylococcus aureus* resulting in four persons becoming ill. The other outbreak, *Campylobacter enteritis*, affected 20 persons residing in a small subdivision with water supplied by a well contaminated due to a broken sewage pipe.

A high incidence (219 cases) of viral (aseptic) meningitis occurred in St. Charles and St. Louis counties during June–August of 1998. Statewide, 319 cases of viral meningitis were reported. This is an increase of 320 percent over the 99 cases reported statewide in 1997.

Table 2. Nosocomial disease outbreaks by cause and number of cases, Missouri, 1998.

Disease/ Mode of Transmission	No. of Outbreaks	No. of Cases
Acute Gastrointestinal Illness of Unknown Etiology/		
Person-to-Person	5	129
Other	1	26
Acute Lower Respiratory Illness of Unknown Etiology/Person-to-Person	8	107
Eye Injury/Chemical	1	6
Influenza-Like Illness/Person-to-Person	4	206
Influenza A/Person-to-Person	5	136
Methicillin-Resistant *Staphylococcus aureus* (MRSA)/Person-to-Person	2	8
Pediculosis/Person-to-Person	1	5
Salmonellosis/Person-to-Person	1	3
Scabies/Person-to-Person	14	248
Serratia marcescens/Person-to-Person	1	11
Streptococcus salivarius meningitis/ Medical Procedure	1	2
Upper Respiratory Infection of Unknown Etiology/Person-to-Person	1	45
TOTAL	**45**	**941**

1998 Nosocomial Outbreaks

Hospitals, nursing homes, and other health care facilities or institutions in Missouri reported 45 health care-associated (nosocomial) disease outbreaks in 1998 as compared to 33 nosocomial outbreaks during 1997. Altogether, 941 cases of illness were reported. This is an increase of 27 percent from the 33 outbreaks (686 cases) reported in 1997. In 42 (93%) of the 45 outbreaks, transmission of disease was person-to-person. Table 2 categorizes these outbreaks by cause and number of cases.

Two Methicillin-Resistant *Staphyloccocus aureus* (MRSA) outbreaks involved infections of the eyes. Strict attention to handwashing and the cohorting of infected persons were effective in stopping further spread of MRSA. A common source (medication or staff member) was not identified in either outbreak.

A meningitis outbreak caused by *Streptococcus salivarius* involving two persons was related to radiographic myelogram procedures. As identified in other studies, the practice of wearing masks during the procedure can prevent such infections.

An outbreak involving corneal endothelial decompensation (eye injury) in six persons was related to adverse effects of one or more chemicals directly related to the use of the Abtox Plazlyte Sterilization system. This outbreak investigation resulted in Abtox conducting a nationwide field correction of the device to include revised labeling contraindicating the use of the Abtox Plazlyte Sterilization system for ophthalmic instruments.

1999–2000 Recommendations for the Use of Influenza Vaccine

The following is a summary of current recommendations on influenza vaccine from the Advisory Committee on Immunization Practices (ACIP). The complete ACIP statement was published in *Morbidity and Mortality Weekly Report (MMWR) Recommendations and Reports*, April 30, 1999, Vol. 48, No. RR-4. The full text of the ACIP recommendations is also available at **http://www2.cdc.gov/mmwr/mmwr_rr.html**. If you have questions regarding the recommendations, please contact the Section of Vaccine-Preventable and Tuberculosis Disease Elimination at (800) 699-2313.

Influenza vaccine is strongly recommended for any person aged 6 months or older who—because of age or underlying medical condition—is at increased risk for complications of influenza. In addition, health-care workers and others (including household members) in close contact with persons in high-risk groups should be vaccinated to decrease the risk of transmitting infection to persons at high risk. Influenza vaccine also can be administered to any person aged 6 months or older who wishes to reduce the chance of becoming infected with influenza.

The trivalent influenza vaccine prepared for the 1999–2000 season will include A/Beijing/262/95-like (H1N1), A/Sydney/5/97-like (H3N2), and B/Beijing/184/93-like hemagglutinin antigens. For the B/Beijing/184/93-like antigen, U.S. manufacturers will use the antigenically equivalent B/Yamanashi/166/98 virus because of its growth properties and because it is representative of currently circulating B viruses.

Target Groups for Vaccination

Persons at High Risk for Influenza-Related Complications

Vaccination is recommended for the following groups of persons who are at increased risk for complications from influenza:

- persons aged 65 years and older;
- residents of nursing homes and other chronic-care facilities that house persons of any age who have chronic medical conditions;
- adults and children who have chronic disorders of the pulmonary or cardiovascular systems, including asthma;
- adults and children who have required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications);
- children and teenagers (aged 6 months to 18 years) who are receiving long-term aspirin therapy and therefore might be at risk for developing Reye's syndrome after influenza; and
- women who will be in the second or third trimester of pregnancy during the influenza season.

Persons Who Can Transmit Influenza to Those at High Risk

Persons who are clinically or subclinically infected can transmit influenza virus to persons at high risk for complications from influenza. Efforts to protect members of high-risk groups against influenza might be improved by reducing the likelihood of influenza exposure from their care givers. Therefore, the following groups should be vaccinated:

- physicians, nurses, and other personnel in both hospital and outpatient-care settings;
- employees of nursing homes and chronic-care facilities who have contact with patients or residents;
- employees of assisted living and other residences for persons in high-risk groups;
- persons who provide home care to persons in high-risk groups; and
- household members (including children) of persons in high-risk groups.

Other Groups To Consider

Persons Infected with Human Immunodeficiency Virus

Limited information exists regarding the frequency and severity of influenza illness or the benefits of influenza vaccination among persons with human immunodeficiency virus (HIV) infection. However, reports suggest that influenza symptoms might be prolonged and the risk for complications from influenza increased for some HIV-infected persons.

Breastfeeding Mothers

Influenza vaccine does not affect the safety of mothers who are breastfeeding

Influenza

For those of you wishing to bookmark an Internet site for the most current influenza information from the Centers for Disease Control and Prevention (CDC), try:

http://www.cdc.gov/ncidod/diseases/fluvirus.htm

This site includes the most recent CDC surveillance reports and information on antivirals for influenza A, vaccine recommendations, international trends, etc.

or their infants. Breastfeeding does not adversely affect immune response and is not a contraindication for vaccination.

Travelers

The risk of exposure to influenza during travel depends on the time of year and destination. In the tropics, influenza can occur throughout the year, whereas most influenza activity occurs from April through September in the temperate regions of the Southern Hemisphere. In temperate climate zones of the Northern and Southern Hemispheres, travelers also can be exposed to influenza during the summer, especially when traveling as part of large organized tourist groups containing persons from areas of the world where influenza viruses are circulating.

Persons at high risk for complications of influenza should consider receiving influenza vaccine before travel if they were not vaccinated with influenza vaccine during the preceding fall or winter and they plan to a) travel to the tropics; b) travel with large organized tourist groups at any time of year; or c) travel to the Southern Hemisphere from April through September.

Persons at high risk who received the previous season's vaccine before travel should be revaccinated with the current vaccine in the following fall or winter.

Because influenza vaccine might not be available during the summer in North America, persons aged 65 years or older and others at high risk might wish to consult with their physicians before embarking on travel during the summer to discuss the symptoms and risks of influenza and advisability of carrying antiviral medications for either prophylaxis or treatment for influenza.

General Population

Physicians should administer influenza vaccine to any person who wishes to reduce the likelihood of becoming ill with influenza (the vaccine can be administered to children as young as 6 months). Persons who provide essential community services should be considered for vaccination to minimize disruption of essential activities during influenza outbreaks. Students or other persons in institutional settings (e.g., those who reside in dormitories) should be encouraged to receive vaccine to minimize the disruption of routine activities during epidemics.

Persons Who Should Not Be Vaccinated

Inactivated influenza vaccine should not be administered to persons known to have anaphylactic hypersensitivity to eggs or to other components of the influenza vaccine without first consulting a physician. Information about vaccine components can be found in package inserts from each manufacturer.

Persons with acute febrile illness usually should not be vaccinated until their symptoms have abated. However, minor illnesses with or without fever do not contraindicate the use of influenza vaccine, particularly among children with mild upper respiratory tract infection or allergic rhinitis.

Administration of Influenza Vaccine

Timing

Beginning each September, influenza vaccine should be offered to persons at high risk when they are seen by health-care providers for routine care or as a result of hospitalization. For organized vaccination campaigns, the optimal time to vaccinate persons in high-risk groups is usually from October through mid-November, because influenza activity in the United States generally peaks between late December and early March. Administering vaccine too far in advance of the influenza season should be avoided in facilities such as nursing homes, because antibody levels can begin to decline within a few months of vaccination. If regional influenza activity is expected to begin earlier than December, vaccination programs can be undertaken as soon as current vaccine is available. Vaccine should be offered to unvaccinated persons even after influenza virus activity is documented in a community.

Simultaneous Administration of Other Vaccines, Including Childhood Vaccines

The target groups for influenza and pneumococcal vaccination overlap considerably. For persons at high risk who have not previously been vaccinated with pneumococcal vaccine, health-care providers should strongly consider administering pneumococcal and influenza vaccines concurrently. Both vaccines can be administered at the same time at different sites without increasing side effects. However, influenza vaccine is administered each year, whereas pneumococcal vaccine is not.

Children at high risk for influenza-related complications can receive influenza vaccine at the same time they receive other routine vaccinations.

Potential Expansion of Groups Recommended for Vaccination

During 1998, the ACIP formed a working group to explore issues related to the potential expansion of recommendations for the use of influenza vaccine in the future. These discussions were started because a) the impact of influenza might decline because of the development and potential combined use of new influenza vaccines, antiviral agents, and commercial rapid detection kits; b) the risk of influenza-related hospitalizations might be substantially increased among healthy children aged less than 5 years compared with older children; and c) a substantial cost benefit might result from vaccinating groups such as healthy young adults, who traditionally are not considered to be at high risk for influenza-related complications.

No recommendation for expansion beyond the current guidelines has been made as of April 30, 1999.

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Alternate forms of this publication for persons with disabilities may be obtained by contacting the Missouri Department of Health, Office of Epidemiology, P.O. Box 570, Jefferson City, MO 65102-0570, Ph: (573) 751-6128. TDD users can access the preceding phone number by calling (800) 735-2966.

LATE BREAKERS

☞ According to data from the Bureau of Labor Statistics and the Census of Fatal Occupational Injuries, workplace fatalities in Missouri increased from 123 in 1997 to 145 in 1998. The increase is partially due to an increase in motor vehicle accidents and falls from heights. Since 1992, workplace fatalities have fluctuated from a high of 155 in 1994 to a low of 123 in 1997, averaging 137 deaths per year. Leading causes of workplace fatalities remain motor vehicle, struck-by moving or falling objects, homicides and falls. For more information, please contact Tom Ray in the MO FACE program at (573) 751-6103.

☞ Shigellosis increased 617.6% from 51 cases reported in the first six months of 1998 to 366 cases reported in the first six months of 1999. The large increase in cases was due to outbreaks in daycare facilities and schools in the Southwestern and Eastern health districts. The number of reported cases has been decreasing in recent months. Like other foodborne diseases, the risk for acquiring Shigella can be markedly reduced by thorough handwashing. Please encourage all food care workers, child care providers and other persons to wash their hands thoroughly after using the toilet or changing diapers and before food handling or eating.

☞ The Midwest AIDS Training and Education Center (MATEC) and the AIDS Clinical Trials Unit at Washington University School of Medicine are presenting a symposium entitled "HIV 2000: Clinical Issues for the New Millennium" on November 2, 1999 at the Regal Riverfront Hotel in St. Louis, MO. This symposium is for primary care physicians, nurses, physician assistants, health educators, social workers and other care providers. For more information, contact Susan Wightman, BSN, ACRN at Washington University School of Medicine at (314) 362-2418 or (800) 432-0448. Discounted fee for enrollments postmarked by October 22, 1999.